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CAMBODIA TROPICAL FORESTRY AND BIODIVERSITY (118/119) ASSESSMENT

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FRONT COVER: As a baby, Chhouk lost his foot in a poacher's snare when his family group ventured too close to a village. A rescue team found the young elephant and took him to Phnom Tamao Wildlife Rescue Center, where he received a prosthesis donated by the Cambodian School of Prosthetics and Orthotics. Years later he walks well with his prosthesis and serves as an ambassador for his wild compatriots. Photo: Pat Foster-Turley

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EXECUTIVE SUMMARY

To assist USAID/Cambodia in complying with Sections 118 and 119 of the United States Foreign Assistance Act (FAA) of 1961 (as amended), this assessment describes the status of Cambodia's tropical forests and biodiversity, and analyzes the actions necessary to protect and sustainably manage these resources. In addition, this report explores how USAID/Cambodia can effectively support the country's conservation and natural resource management efforts.

Cambodia's Forests and Biodiversity

Despite being a relatively small country (about the size of Oklahoma in the United States), Cambodia contains some of Southeast Asia's richest areas of biodiversity and largest tracts of forest. Forests cover about 55 percent of the country and represent a substantial source of its natural wealth, according to the 2010 Forest Resources Assessment from the United Nations Food and Agriculture Organization (FAO).

Many natural habitats support biodiversity in Cambodia, from the coral reefs, mangroves, and sea-grass beds along the coastline to the rich alluvial plains and mountainous areas that are home to many different forest types. Aquatic ecosystems include coastal estuaries, wetlands of many varieties, the Mekong and numerous other rivers, and lakes, including Tonle Sap (Great Lake), the largest inland body of water in Southeast Asia. These diverse habitats provide niches for myriad plant and animal species. Although the biodiversity of many species has yet to be investigated, Cambodia is known to harbor flagship species such as elephants, tigers, and Irrawaddy dolphins within its borders.

Threats to Biodiversity and Tropical Forests

This report documents the considerable threats to Cambodia's forests and biodiversity. Logging, most of which is illegal, has long been a source of ready capital for the economically powerful. Moreover, Cambodia's 1995 ban on new timber concessions has never been effectively enforced. The Royal Government of Cambodia (RGC) grants economic land concessions for large agricultural schemes, hydropower plants, mining operations, and large infrastructure projects, many of which are located in the country's remaining natural areas. As a result, the steep decline in forest cover that Cambodia experienced in the 1990s continued between 2000 and 2010. Since 2005, however, Cambodia has succeeded in reducing the precipitous loss of primary forest.

Other threats to biodiversity include the rapid development of tourism on the coast, sand mining in waterways, overfishing and illegal fishing techniques, illegal harvesting of forest products, illegal wildlife trade, and the introduction of exotic species. These direct threats involve on-the-ground or in-the-water challenges that are rooted in institutional, political, social, and economic factors.

Socioeconomic Aspects

A majority of Cambodians rely on fishing and agriculture for sustenance and live close to biodiverse forests and other natural habitats. More than one-third of Cambodians live below the poverty level. Rapid development is putting serious pressure on these people, most of whom live in rural areas, and on remaining natural habitats and rare species of local, national, and international importance.

Root Causes of Threats to Biodiversity and Options for Conservation Action

Lack of financial transparency. In some situations, a lack of transparency has characterized financial arrangements related to the extraction and use of natural, mineral, and water resources in Cambodia. Exercising the right of access to information enables citizens to keep their governments and public bodies accountable. Options for action include:

- Ensuring that plans for economic land concessions, hydropower schemes, and other development projects are fully documented, that environmental impact assessments are conducted by outside experts and made public, that the public has the opportunity to comment on the projects, and that the government considers those comments before it approves any projects.
- Making available to the public financial information related to forests, fisheries, and the sale of other biological resources.
- Developing a transparent trust-fund mechanism, managed jointly by the government, donors, and NGOs, that provides resources for biodiversity and forest conservation measures.

Lack of knowledge and awareness. The conservation and sustainable management of natural wealth rests on the willingness and ability of the government, the people, and institutions to shift the paradigm from resource extraction, which benefits the few, to long-term resource stewardship that equitably benefits all. Such a change depends on broad-based awareness of the true value of a country's natural wealth and a common understanding of what is happening, why it is happening, and what can be done to protect and equitably share that wealth. Options for action include:

- Developing the capacity of technical experts, print and broadcast media, and the wider journalism community to report on biodiversity conservation and environmental issues.
- Supporting efforts to study stocks of fish, trees, non-timber forest products, and other natural resources; making this information available to the public; and using the information to set sustainable yield levels.
- Developing public awareness campaigns that disseminate information about biodiversity and overall environmental conservation through all media outlets.

- Supporting programs that bolster the curriculum at all grade levels to include conservation components, and supporting informal "EcoClubs" that supplement formal education, especially in target communities around forests and other areas with rich biodiversity.
- Supporting programs that demonstrate and educate Cambodian government officials about the long-term consequences of unplanned development.

Weak human rights. Most citizens living near forests, wetlands, and other areas with rich natural products and biodiversity depend on these resources for their livelihoods. Often, these people have insecure land tenure rights and lack a voice in determining how the land they inhabit is used, resulting in an overall situation of weak human rights. Options for action include:

- Continuing and expanding on initiatives, such as USAID's project with the East-West Management Institute, that bolster the voice of civil society organizations and address land tenure and resource extraction issues facing communities in forests, along waterways, and in other areas of rich biodiversity.
- Supporting community forestry, fisheries, and ecotourism programs that give communities government-recognized land tenure rights and control over natural resources.

Conflicting jurisdictions. Often, weak governance in resource management means that the state and non-state actors charged with environmental protection and sustainable resource management are unable to provide adequate checks and balances on the institutions that generate substantial revenues and foreign investment from the exploitation of natural resources. Differing mandates and conflicting jurisdictions among RGC agencies and entities inhibit Cambodia's progress in conserving natural resources and biodiversity. Options for action include:

- Harmonizing policies related to biodiversity and biological resource management among involved ministries and agencies.
- Supporting efforts to ensure areas that have been "protected" for their forests and rich biodiversity are also protected from economic land concessions, hydropower projects, mining, and other destructive activities.
- Expanding support to strengthen the capacity of the Ministry of Environment (MOE), Ministry of Agriculture, Forestry, and Fisheries (MAFF), and their agencies to effectively carry out their mandates to protect and sustainably manage the resources under their domains.

Lack of enforcement and follow-through. The remote locations and large areas that often characterize natural forests and other biodiverse habitats are difficult places in which to enforce rules. One solution is to take a holistic approach to building enforcement capacity, including all branches of government as well as civil society and local communities. Options for action include:

- Dedicating more human, management, and financial resources to the dissemination and enforcement of laws related to hunting, fishing, and other biological resource extraction activities.
- Providing additional support to rangers, guards, and others working in forests and biodiverse areas, and empowering them to be effective.
- Supporting the judicial system to enforce natural resources laws and provide appropriate penalties for transgressors at all income levels.
- Providing policy-related, technical, and financial support for the development of the proposed new wildlife law, to ensure a stronger legal framework for wildlife protection.

Poverty. The mainstream belief — that environmental concerns must be sacrificed to enable poor countries to develop — has been increasingly replaced with the recognition that poverty both drives and follows environmental degradation. Poor, dispossessed, and socially disadvantaged populations are simultaneously the most vulnerable to resource degradation and the least able to engage in sustainable practices. Nevertheless, there is a growing understanding that the poor can be effective allies in sustainable resource management when they receive a fair share of the benefits. Options for action include:

- Enabling communities to benefit more fully from the protection of their natural areas through more support for alternate livelihoods such as ecotourism and handicraft production and for micro-, small, and medium-sized enterprises (MSMEs).
- Ensuring that local people obtain greater benefits from natural resources by enhancing value chains for natural products.
- Compensating communities for preserving their forests through support for programs that provide payment for environment services through REDD+[1] or other mechanisms.
- Supporting the study of the effects of global climate change on impoverished communities living in and around forests and other biodiverse areas, and providing options that will enable those communities to adapt.

The authors of this report hope its contents will be useful to USAID, the Royal Government of Cambodia, and others working on conservation issues in Cambodia. Though the country faces many challenges, its universities are training a new cadre of conservationists and natural resource managers, and numerous local, national, and international programs are working to protect its natural resources. With these new professionals and continuing initiatives, the overall outlook for Cambodia's biodiversity and tropical forests is still hopeful.

[1] "Reducing Emissions from Deforestation and Forest Degradation and the Roles of Conservation, Sustainable Management of Forests, and Enhancement of Forest Carbon Stocks in Developing Countries."

SECTION I

Introduction

To assist USAID/Cambodia as it develops a new strategic plan for 2011-2014, this assessment was conducted to help ensure compliance with the requirements of sections 118 (tropical forests) and 119 (endangered species) of the Foreign Assistance Act. Both sections of the FAA (see Annex A) contain similar language requiring each country development strategy statement or other country plan prepared by USAID to include "an analysis of (1) the actions necessary in that country to achieve conservation and sustainable management of tropical forests/biodiversity and (2) the extent to which the actions proposed for support by the agency meet the needs thus identified."

Team Leader Pat Foster-Turley and tropical foresters Sona Long, and Sovannarith Long formed the in-country assessment team, with support from Research Specialist Saroeun Earm. Project Director John Michael Kramer, Gladys Villacorta, and Justina Wong also supported this team from were. Annex B provides the scope of work.

The assessment began in Washington, D.C., in October 2010, with initial meetings between Dr. Foster-Turley, USAID staff, and international NGOs implementing projects in Cambodia. In November 2010, the assessment team interviewed key individuals from the Royal Government of Cambodia, NGOs, universities, and communities in Phnom Penh and two coastal areas, Siem Reap/Kampong Thom and Koh Kong/Sihanoukville. Through site visits, the team visited forestry and fishery areas, community ecotourism businesses, and small enterprises (rattan and honey), and interviewed the community leaders involved in these activities. The team also interviewed private ecotourism and dive operators and visited dams, sand-mining operations, and hydropower plants to gain a variety of perspectives. Finally, they visited Kirim and Ream National Parks, captive animal facilities at Phnom Tamao Wildlife Center and Angkor Center for the Conservation of Biodiversity, and the natural history museum and herbarium at the Royal University of Phnom Penh.

In Section II, this report begins with a description of Cambodia's forest, aquatic, and coastal/marine ecosystems, their biodiversity, and the socioeconomic context. It then reviews protected areas, institutional frameworks, and conservation organizations working in the country. Section III examines key actions needed to conserve Cambodia's biodiversity and forests in terms of direct threats and root causes. Section IV reviews the extent to which USAID/Cambodia's current programs meet those needs.

During the four weeks allocated for in-country work and interviews, the team covered a lot of ground and water. Annex C provides three maps depicting protected areas, large-scale development projects, and community forestry areas in Cambodia. Many helpful people and organizations paved our way during this assessment, and we are grateful for their assistance and cooperation.

SECTION II

The Importance of Tropical Forests and Biodiversity

A. Overview of Cambodia's Ecosystems and Biodiversity

Cambodia is a relatively small Southeast Asian country with an area of 181,035 km^2. It is defined by the Gulf of Thailand to the south and shares borders with Thailand, Laos, and Vietnam. Despite its small geographic area — about the size of the state of Oklahoma in the United States — Cambodia's borders contain some of the region's richest remaining natural habitats and greatest biodiversity. Exhibit 1 provides an illustration of some of the country's features mentioned in this report.

Exhibit 1. Physiographic Features of Cambodia

Although forests and natural resources have been overexploited in other parts of Southeast Asia, Cambodia's natural resources have, until recently, been largely untapped. This is due in part to the country's tragic recent human history. For many years after the Khmer Rouge regime, many natural areas were inadvertently guarded against human use by land mines. In recent years, the land mine situation has improved and the government's increasing drive toward development means resources are being depleted.

As a result, Cambodia is quickly joining its neighbors in the amount of degraded natural ecosystems and threatened biodiversity that relies on those ecosystems.

B. Status of Habitats in Cambodia

To understand the diversity of species in Cambodia, it is important to consider the diversity of habitats in which these species occur. The country includes many diverse ecosystems, all supporting a variety of plants and animals. Its landscape includes extensive lowlands, from the alluvial plains surrounding the Tonle Sap (Great Lake) and the Mekong River to sandstone plains in the north/northeast and fertile soils in the Battambang plain. Savannas and savanna woodlands, wetlands, and agricultural areas make up much of Cambodia's central plains. (See Exhibit 1.)

The human population is largely rural, living primarily in the plains, where most natural vegetation has been replaced by agricultural crops, particularly rice. Other major crops include maize, soybeans, mung beans, vegetables, groundnuts, and sesame. The agriculture sector also includes industrial crops (e.g., rubber, cassava, sugar palm, sugarcane, jute, and tobacco), which are grown in a variety of regions.

Cambodia's lowlands are surrounded by mountainous areas, including the Cardamom and Elephant Mountains of the coast, the Dangkrek mountains along the border with Thailand, and the Kon Tum and Chhlong plateaus. The human population is sparse in many of these areas, and some forested areas provide a refuge for rare ungulate and predator species.

Water systems throughout the country, including the Tonle Sap and its wetlands and seasonally inundated forests, the Mekong River and tributaries, and coastal areas, also provide habitats harboring high levels of biodiversity.

The following sections describe some of Cambodia's major habitats in more detail.

B1. Forests

Official figures from the Royal Government of Cambodia (RGC Forestry Administration, 2009) state that forests cover 58.8 percent of the country, and the 2010 FAO Forest Resources Assessment (FAO, 2010) estimates forest cover at about 55 percent. This data includes rubber plantations, however, so the exact extent of forest coverage is unclear. In 1965, forests were thought to have covered about 73 percent of the country, indicating large-scale loss of these habitats in the years that followed (FAO, 2010).

Cambodia's forests vary with altitude, soil type, and other microclimatic conditions. Pockets of karst substrate, different soils, and localized features help define the biodiversity of the forests, and many rare plant and invertebrate species are tied to specific small habitats in overall forest systems. This section summarizes some of the major forest types, including updated figures and ecological descriptions from a 2002 report from Associates in Rural Development.

Evergreen forests grow primarily on the south-facing slopes of the Cardamom and Elephant Mountains, where there is an abundance of rainfall. Historically, this forest type extended from the coast to an elevation of 700 meters. The canopy is typically irregular, allowing enough light to support a rich understory of palms and lianas. Many sub-types of evergreen forest can be found at different elevations and on different soil types.

Semi-evergreen forests are found in areas with less rainfall, which is more seasonal. These forests are highly variable, with a tall, complex canopy structure and extremely rich species composition. Principle areas for this forest type are the northern slopes of the Cardamom and Elephant Mountains, the central alluvial plains, and the hills of the northeast. Semi-evergreen forest is thought to have been Cambodia's most predominant landscape before it was modified by human activities such as fire and swidden agriculture.

Mixed deciduous forests are found where there is seasonally high rainfall (more than 1,500 mm annually) followed by a dry season of five to six months. Teak (*Tectona grandis*) is commonly found in this forest type in Southeast Asia, but is not naturally present in Cambodia. Mixed deciduous forests are similar to semi-evergreen forests and occur in similar parts of the country.

Deciduous dipterocarp forests, often called dry dipterocarp forests, are found on arid soils up to an elevation of about 600 meters. Occasional fires are necessary for these forests to develop; the widespread distribution of this habitat may be a result of human activities. In Cambodia, these forests are found primarily in lowland areas north of Tonle Sap and east of the Mekong River, and on the northern and eastern slopes of the Cardamom and Elephant Mountains.

Lowland pine forests include only one species of pine, *Pinus merkusii*, which may be interspersed with other tree species. In Cambodia, lowland pine forests are found primarily south of Tonle Sap on the plateau of Kirirom National Park and the southeastern area of the Elephant Mountains.

Montane forests are found above 800 meters, where conditions are cool and humid. Cambodia's montane forests are found in the Cardamom and Elephant Mountains, and in the mountains and plateaus of the northeast.

Flooded forests, often called "seasonally inundated forests," exist primarily around the Tonle Sap and Mekong River flood plains. Most trees in flooded forests are deciduous, losing their leaves when submerged, although a few species remain evergreen. These forests serve as important nurseries for the extensive fishery of the Tonle Sap. Human activities have degraded many of these forests to low shrubby growth.

Mangrove forests are found in all of the coastal provinces, although the primarily rocky coastline and lack of major estuaries limit its distribution. Cambodia's most pristine remaining mangrove forests are found in Koh Kong Province and Ream National Park, and between Kampot town and Kep Province.

B2. Wetlands and Freshwater Systems

Cambodia has ample freshwater resources associated with the Tonle Sap in its center, the Tonle River, which connects Tonle Sap to the Mekong River, and the Mekong River itself, with its many tributaries.

- *The Mekong River* originates in the Tibetan Plateau and travels through several countries before entering Cambodia at the Laotian border. In Cambodia, the river flows south through Stung Treng and Kratie, then west at Chhlong, south again through Phnom Penh, and into Vietnam, where it becomes a delta.

- *The Tonle Sap River* flows from the Tonle Sap south to join the Mekong River near Phnom Penh during the dry season, reversing its flow north from the Mekong back into the Tonle Sap during the wet season. This flow of water and sediments provides the basis for Cambodia's major fishery resources and deposits nutrients for agriculture.

- *Tonle Sap.* When fully flooded during the wet season, the "Great Lake" swells to nearly five times its dry-season size; at this time it is approximately 10,400 km^2, the largest lake in Southeast Asia and the largest flood plain lake in the world.

Wetlands cover 30 percent of the country, a proportion that only Bangladesh exceeds in Asia. Much of Cambodia's wetland area meets internationally accepted standards for "wetlands of international importance" and represents more than 5 percent of the internationally important wetlands in Asia. Largely due to this preponderance of aquatic habitats, fish provides an estimated 70 percent of the protein consumed by the country's human population (Associates in Rural Development, 2001).

B3. Marine and Coastal Ecosystems

Cambodia's 435 km coastline includes sandy beaches, rocky shorelines, and the mouths of a number of rivers. More than 50 offshore islands — some wooded, most uninhabited by humans — provide further inter-coastal habitats.

Sea-grass beds. Despite its relatively short coastline, Cambodia has extensive sea-grass beds that are among the largest in the South China Sea and Gulf of Thailand region. Sea-grass beds provide spawning, nurseries, and feeding grounds that support important coastal fisheries and form habitats for rare species, such as the dugong (*Dugong dugon*) and green sea turtle (*Chelonia mydas*). Seahorses, once a common sight, are disappearing rapidly due to overharvesting for export to nearby countries for use in traditional medicine. Sea grass is now recognized for its carbon sequestration, but this habitat is under increasing threat from dredging and building activities along the coast.

Coral reefs. Cambodia's marine ecosystems include coral reefs near the coast and ringing many of the offshore islands. Recent warmer-than-usual temperatures have reportedly

bleached much of the coral, but it is said to be recovering. Coral reefs are also threatened by illegal trawling, dynamite fishing, and other harmful and illegal fishing practices.

Mangrove forests along Cambodia's coastline provide protection from storms and habitats for a variety of species. They are also under threat from sand-dredging and development along the coast.

C. Description and Status of Biodiversity

There are many different estimates of the number of species of plants and animals in Cambodia, and scientific teams studying the remaining wilderness areas often identify previously unknown species during the course of their explorations. For instance, in November 2010, World Wildlife Fund (WWF) Cambodia announced the discovery of a "giant carnivore," a large pitcher plant previously unknown to science. The plant was discovered on Bokor Hill in southern Cambodia, an area threatened by a new economic land concession (WWF, 2010).

Exhibit 2 lists the number of known species recognized by the ASEAN Center for Biodiversity (2010). The latest RGC report to the Convention on Biodiversity also refers to these numbers (RGC, 2009). We obtained numbers for marine organisms from the National Strategy on National Action Plan for Coral Reef and Seagrass Management in Cambodia, 2006-2010 (RGC, 2006). The source for numbers of endangered, threatened, or vulnerable species in Cambodia were obtained from the latest International Union for Conservation of Nature (IUCN) Red List; Annex D recreates this list (IUCN, 2010).

Exhibit 2. Known Species in Cambodia

Taxon	Total Known Species	On IUCN Red list as Endangered, Threatened, or Vulnerable (2010)
Mammal species	123	37
Bird species	545	36
Fish species	874	-
Reptile species	88	13
Amphibians	63	12
Vascular plant species	2,308	38
Hard coral	24	-
Soft coral	14	-
Sea grass	10	-

Most mollusks, arthropods, other invertebrates, nonvascular plants, fungi, and other taxa have not yet been assessed in Cambodia, much less for their conservation status. Cambodia's wild plants are also poorly studied and their biodiversity is largely unknown, but they are estimated at around 3,000 species. At least 200 endemic plant species have been found in Cambodia, and it is likely that many more exist in isolated areas (such as high mountains), limestone outcrops, peat swamps, and other unique habitats.

C1. Mammals

Mammal and bird species are the most thoroughly studied and most catalogued animal species in Cambodia, as they are throughout the rest of the world. More than 100 species of wild mammals are known in Cambodia, but more species, particularly bats, are likely to be recorded when further surveys are conducted in key areas.

The rarest mammals in Cambodia are those found in the still-wild areas of the northern plains to the west of the Mekong River and north and east of Tonle Sap, the eastern plains in and around Mondulkiri Province, the southern Annamites, and the Cardamom Mountains). The country's wetlands and waterways have recently been found to harbor the rare hairy-nosed otter (*Lutra sumatrana*), a species once thought to be near-extinct (Foster-Turley et al., 2000).

A number of rare and little-known mammals, such as the dugong (*Dugong dugon*), a relative of the manatee, and the Indo-Pacific humpback dolphin (*Sousa chinensis*) are found in coastal and offshore waters. Many rare Cambodian mammals, including globally recognized flagship species such as the tiger (*Panthera tigris*) and Asian elephant (*Elephas maximus*) are becoming scarcer; these species exist in barely sustainable numbers. The World Wildlife Fund (2010b) estimates that there are only between 64 and 76 Irrawaddy dolphins (*Orcaella brevirostris*) remaining in a 190 km stretch of the Mekong River between Cambodia and Laos.

C2. Birds

Largely due to the interest of birdwatchers from around the world, Cambodia's bird fauna is relatively well-known. More than 500 bird species are reported — a few are critically endangered and BirdLife International considers 40 species to be globally threatened or globally near-threatened (BirdLife International, 2010). Many of these birds depend on the large wetland habitats around the Tonle Sap and on the smaller wetland patches in the northern dipterocarp forest plains.

The water birds that collect in these areas during the dry season are among the largest groups of such birds still found in mainland Southeast Asia. One of these, the Bengal Florican (*Houbaropsis bengalensis*), is a species of focus for the Wildlife Conservation Society in Cambodia. Similarly, Sarus cranes (*Grus antigone*), considered globally important, are under study by the Wildlife Conservation Society. Since 2007, these cranes have been protected by the RGC in the Boeung Prek Lapouv Sarus Crane Conservation Area in northern Cambodia, through an initiative sponsored by BirdLife International.

C3. Fish, Reptiles, and Amphibians

Fish have great economic importance for Cambodia, but many species are little-known and under-studied. FishBase lists 484 freshwater species, 13 of which are introduced species (e.g., various carp, catfish, and tilapia), and 427 of which are brackish and

saltwater species (Froese and Pauly, 2010). More study may reveal the number of species to be significantly larger.

The Tonle Sap and the Mekong River support an abundance of fish but relatively few species. For the most part, only the more economically important species have been studied. One of these, the giant Mekong catfish (*Pangasianodon gigas*), which migrates long distances along the Mekong River, has been named a flagship species to draw conservation attention to the entire Mekong ecosystem.

Much more work remains to be done to thoroughly understand Cambodia's herpetofauna, which include 88 reptile species and 63 amphibian species. The country's endemic reptiles include the Cardamom gecko (*Cyrtodactylus intermedius*) and the Tonle Sap water snake (*Enhydris longicauda).* The IUCN recently "upgraded" the Siamese crocodile (*Crocodylus siamensis*) to critically endangered status, due to the hybridization of wild crocodiles with released hybrids from the country's crocodile farms, which are largely unregulated. Another well-studied reptile is the mangrove terrapin (*Batagur baska*), also called "royal turtle" in Cambodia because it was once considered to be the exclusive property of the royal family.

C4. Invertebrates

Cambodian invertebrates are little-known and it is likely that many new species will be found in the remaining geographically isolated natural areas. Many aquatic species and many "shellfish," including crustaceans (shrimp and crabs), clams, oysters, and other mollusks, are harvested commercially but not well-studied. Mollusks, crustaceans, insects, worms, and myriad other invertebrate taxa with little economic value have barely been considered. The RGC has undertaken efforts to catalogue corals along the Cambodian seashore (RGC, 2006), but there are few studies of most other marine taxa.

C5. Domestic Plant and Animal Diversity

Maintaining agricultural genetic biodiversity is increasingly viewed as a cornerstone of food security, in light of the anticipated effects of global climate change. Cambodia, which is also known for its diversity of maize, soybean, sesame, peanuts, and vegetables, is home to at least 1,270 different cultivars of wild rice and perhaps as many as 2,000 varieties (Tong and Yashida, 2008). International Rice Research Institute projects have helped preserve rice seeds of many cultivars. In changing conditions of heat, drought, flooding and the like, old cultivars of standard crops may become important once again.

The use of preserved cultivars has been demonstrated in Cambodia following the Khmer Rouge period, in which many local varieties of rice disappeared. These lost varieties were replaced with seeds that International Rice Research Institute had preserved, and are again grown in Cambodian rice fields.

A number of domesticated animals are also present in Cambodia. According to the Biodiversity Strategy and Action Plan for Cambodia (RCG, 2002), there are a number of

domesticated breeds of wild cattle, water buffalo, and ponies. In addition, Southeast Asia is the center of origin for wild poultry including chickens, ducks, and geese.

D. Habitats of Global Significance

Cambodia contains a number of areas that have received global attention for their biodiversity and conservation value. Though the country's two World Heritage Sites, Angkor Wat and Preah Vihear Temple, were declared largely for their cultural value, biodiversity and forests are also protected in these areas. A UNESCO Biosphere Reserve has been declared on Tonle Sap, with three core areas: Prek Toal, an important bird sanctuary on the northern side of the lake; Moat Klah/Boeung Chhmar on the eastern side; and Stoeng Sen, further south.

In addition, three "wetlands of international importance" (Ramsar sites) have been designated. Boeng Chhmar has double billing as a Ramsar site and a core area of the Tonle Sap Biosphere Reserve. Two other Ramsar sites are Koh Kapik/Koh Kong and surrounding areas along the coast and parts of the middle stretch of the Mekong River north of Stung Treng.

BirdLife International recognizes 40 "important bird areas" in Cambodia (BirdLife International, 2010). One of these is the Sarus Crane Reserve at Ang Tropeang Thmor, which was declared by RGC Royal Decree in February 2000.

The World Wildlife Fund recognizes the Greater Mekong area, which includes Cambodia and neighboring countries, as a "priority place" because of its international biodiversity and conservation importance. In addition, Conservation International's Indo-Burma biodiversity hotspot includes Cambodia. Wildlife Conservation Society, Fauna and Flora International, and other global NGOs also include Cambodia in their most critical regional efforts.

E. Protected Areas in Cambodia

All told, there are 3,134,471 hectares of national parks, sanctuaries, and protected landscapes in Cambodia. However, few of these protected areas are demarcated, and fewer still have adequate protection. Some of the areas listed as protected under different categories include farming villages and private companies. In addition, some protected areas share space with mining areas, economic land concessions, hydropower plants, and other large-scale development operations.

Protected areas in Cambodia are managed by the Ministry of Environment and the Ministry of Agriculture, Forestry, and Fisheries. The MOE is responsible for national parks, wildlife sanctuaries, protected landscapes, and multiple use areas listed in Exhibit 3 (next page). MAFF is responsible for the management of protected forest areas totaling 1,539,416 hectares (see Exhibit 4 on page 12). Other forested areas fall under a variety of categories (e.g., community-managed forest and permanent state forest) under the jurisdiction of numerous entities.

In addition to the MAFF-managed forests listed in Exhibit 4, Cambodia is home to 406 community forests, accounting for 383,051 hectares (RGC Forestry Administration, 2009) and all in different stages of development, according to the Center for People and Forests (RECOFTC). Local cantonments and villages manage the community forests, generally with support from RECOFTC, Community Forestry International/Pact, Mlup Baitong (a Cambodian NGO), and other local NGOs. None have received an official land title — the eighth and final step in implementing a community forest. About 200 communities have reached Step 6 (management plan preparation); the rest fall lower on the scale. Most community forests are small, some only 100 hectares, but their close management provides opportunities for successful conservation.

The MOE is planning to establish three marine protected areas, two to preserve sea-grass beds near Kampot and Koh Kong (totaling 30,000 hectares) and a third (another 2,800 hectares) focused on coral reefs around Koh Rong (Vibol and Ferber, 2009). Marine Conservation Cambodia, a national NGO, is working with the government to develop these plans, and communities are already being engaged to protect the areas. The plans have received provincial approval, but final approval is still pending at the national level.

Exhibit 3. Protected Areas in Cambodia

	Area (ha)	Locality in Province
National Park		
Kirirom	35,000	Kampong Speu and Koh Kong
Phnom Bokor	140,000	Kampot
Kep	5,000	Kampot
Ream	210,000	Sihanoukville
Botum Sakor	171,250	Kampot and Sihanoukville
Kulen	37,500	Siem Reap
Virachey	332,500	Ratanakiri and Stung Treng
Wildlife Sanctuary		
Phnom Aural	353,7500	Kos Kong, Pursat, Kampong Chhnang
Peam Krasop	23,750	Koh Kong
Samkos	333,750	Koh Kong
Roniem Daun Sam	178,750	Battambang
Koulen Promtep	402,500	Siem Reap, Preah Vihear
Boeng Per	242,500	Kampong Thom
Lamphat	250,000	Ratanakiri and Mondulkiri
Phnom Prich	222,500	Mondulkiri
Phnom Namlear	47,500	Mondulkiri
Snoul	75,000	Kraties
Protected Landscape		
Angkor	10,800	Siem Reap
Bantey Chhmar	81,200	Bantey Meanchey
Preah Vihear	5,000	Preah Vihear
Multiple Use Management Area		
Dong Peng	27,700	Koh Kong
Sam Laut	60,000	Battambang
Tonle Sap	316,250	Kampong Chhnang, Kampong Thom, Pursat, Battambang, Siem Reap.

Source: Protected Areas Database, 2008.

Exhibit 4. Protected Forest Areas

Protected Forest Area	Area (ha)	Locality in Province
Ang Trapong Thmor	12,650	Bantey Meanchey
Kbal Chhay	6,202	Sihanouk
Preah Vihear	190,027	Preah Vihear
Central Cardamom	401,313	Kos Kong, Kampong Speu, and Pursath
Southern Cardamom Elephant Corridor	144,275	Kos Kong
Beoung Preak Lapov	8,305	Takoe
Oyadav Recreation and Hunting Game	10,1348	Rattanakiry
"Seima" Protected Forest and Biodiversity Conservation area	292,690	Mondul kiri, Kraties
Phnom Tamao Zoological Garden and Wildlife Resource center	1,200	Takeo
Mondul kiri	429,438	Mondul kiri
Seed Source of Delbergia bariensis	13	Preah Vihea
Seed Source	117	Kg Thom

F. Value of Cambodia's Biodiversity and Tropical Forests

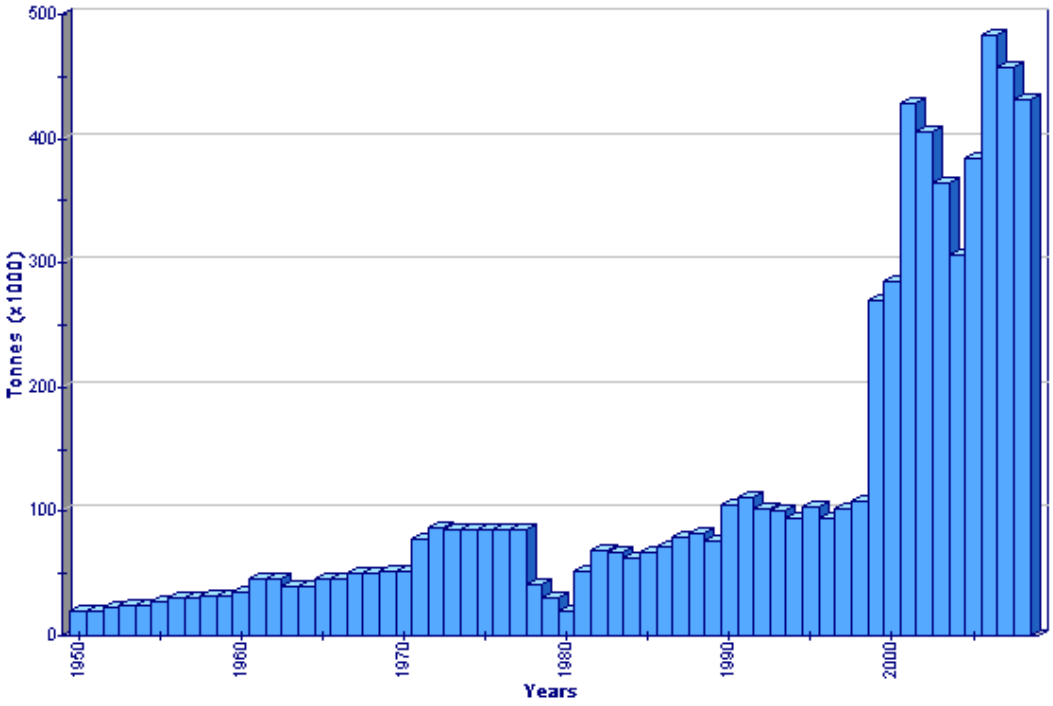
Cambodia's forests and biodiversity are valuable to the people who use the resources they provide, to the private companies that harvest or process them, to the Cambodian government, and to the world. It is difficult to quantify the economic value of live elephants and tigers in pristine tropical forests and reef fish swimming among live corals, but certain elements of Cambodia's biodiversity provide significant, measurable economic benefits. This section discusses a few of these elements.

F1. Fisheries

Cambodia is an important source of fish and other aquatic species for its residents and for the global market. The amount of fish of all species captured in Cambodian waters increased dramatically between 1998 and 2007. Exhibit 5 (next page) displays the most recent FAO statistics (FAO, 2010). Increased harvesting of wild fish and other aquatic species from freshwater and saltwater habitats may pose a risk to the abundance and diversity of native species; however, it is difficult to assess the condition of the fishery with no further data on the species or the relative size of individual fish of different species harvested. Data is also unavailable on the value of this large fishery to Cambodia, but that value is likely significant, given the tons of fish harvested.

According to the RGC's "Fourth Report to the Convention on Biological Diversity," more than 10 percent of Cambodian households primarily depend on fishing activities, and another one-third of households depend on fish on a part-time basis for food or income (RGC 2009).

Exhibit 5. Cambodia Capture Production



Source: FAO Fishery Statistics, http://www.fao.org/fishery/countrysector/FI-CP_KH/3/en

F2. Forestry

The majority of Cambodia's population lives in rural areas and engages in subsistence agriculture, but rely on nearby forests for various products they obtain there. The value of Cambodia's tropical forests is most simply quantified using the following measures: the amount of timber produced; the amount of non-timber forest products extracted, processed, and sold; and the value of these sales. Although Cambodia has ceased granting timber concessions in its forests, it has initiated a system of economic land concessions that result in the clearing of many thousands of hectares of forest. Data on the amount and value of timber cleared from these concessions was not available to the assessment team, but the value is significant, if only for the rural people who rely upon these resources for fuel, food items, and non-timber forest products.

F3. Ecotourism

According to RGC statistics, tourist arrivals have increased fourfold since 2000, with more than 2.1 million visitors to Cambodia in 2009. For years, people have traveled there to visit Angkor Wat, and ecotourism companies are drawing tourists increasingly away from the main track, offering specialty tours to visit natural areas, home-stays with local communities, and other opportunities that rely on well-preserved biodiversity.

A sizeable proportion of international tourists visiting Angkor Wat spend extra time in the Tonle Sap area to take boat trips to the Prek Toal Bird Sanctuary and floating communities in the seasonally inundated forests along the edge of the lake. There are no

statistics available for the overall economic value of ecotourism, but Osmose, the major group operating tours to Prek Toal, charges $95 per person for a day trip. Of each fee, $20 goes to the reserve and some goes to the local communities. Visitors are more than willing to pay this amount for such a rare opportunity.

With the help of Wildlife Alliance, Conservation International, and local NGOs, community ecotourism activities are being developed. Chi Phat village, on the coast near Koh Kong, has received assistance from Wildlife Alliance and now supports 150 or more people that cater to tourists visiting the community. This presence in the forest may, in part, be helpful in deterring a large titanium mine proposed for this area (*Cambodian Daily*, November 21, 2010).

Marine ecotourism is also developing in Cambodia, partly with assistance from Marine Conservation Cambodia and in collaboration with local dive shops. At least four commercial dive shops operate out of Sihanoukville, providing day and overnight trips to the reefs. Ecotourists also now have the opportunity to stay overnight on Koh Rong and nearby islands, where the local communities are working to protect the coral reefs that draw in visitors. The precise economic value of these ventures is unknown, but their work is contributing to the conservation of important natural resources in the area.

F4. Environmental Services

Cambodia's forests, wetlands, coastal areas, and other habitats provide environmental services in the form of storm protection, water purification, air cleansing, and other "ecosystem services" that environmental economists are now able to quantify. In the late 1990s, an international team of economists and scientists provided a compilation of the global ecosystem services values of habitats on Earth (Costanza et al., 1997). The report assessed the economic value of ecosystems using 1994 U.S. dollars. All major ecosystems in Cambodia provide many environmental services. The list below includes the major ecosystems, their primary services, and values converted to 2010 U.S. dollars.

- *Sea grass beds* provide food production and nutrient cycling.
  Value: $33,817 per hectare per year.

- *Coral reefs* provide recreation, disturbance regulation, and food production.
  Value: $28,147 per hectare per year.

- *Tropical forests* provide raw materials, nutrient cycling, and climate regulation.
  Value: $2,972 per hectare per year.

- *Mangrove forests* provide disturbance regulation and waste treatment.
  Value: $14,797 per hectare per year.

- *Rivers and lakes* provide water regulation and water supply.
  Value: $12,587 per hectare per year.

With new understanding of the economic value of the ecosystem services natural habitats provide, users of these services are increasingly being asked to pay to protect the environment through "payment for environmental services" schemes.

G. Tropical Forestry and Climate Change in Cambodia

Cambodia is at the forefront of global climate change initiatives that impact tropical forests and may ultimately help conserve these resources. Although these initiatives are very new, they build on other forest conservation measures, such as community forest management, that have long been in place.

It is widely recognized that forests act to sequester carbon, thereby reducing global climate change. In 2007, the United Nations Framework Convention on Climate Change announced the REDD+ initiative, and Cambodia has some of the world's first REDD+ forest management programs. Under current REDD+ programs, developed-country institutions and companies can voluntarily offset their greenhouse gas emissions by providing payments to developing-country projects for forest conservation and management under conditions that ensure that the offsets are real, permanent, and in additional to a business-as-usual baseline.

In June 2009, the RGC signed an agreement with Terra Global Capital, a technical support/ecosystem services brokering company. The hope is that the agreement will reduce deforestation, thus reducing carbon dioxide emissions by 8.5 million tons in the course of 30 years. Resulting from this agreement, there are now 13 community forest tracts in Oddar Meanchey and 1 in Mondulkiri Province that are being managed as pilot REDD+ carbon-offset projects.

Pact Cambodia, an NGO in partnership with Community Forestry International, has taken a strong role in facilitating these efforts. Building on its longstanding work assisting communities to attain legal tenure for their lands and to benefit from forest resources, Pact now has helped incorporate 13 communities in Oddar Meanchey into REDD + programs that, it is hoped, will provide these communities with income from global carbon credits they receive for preserving the forests. Wildlife Conservation Society is engaged in similar work in Mondulkiri Province and hopes to apply the approach to community forestry areas in Preah Vihear Province. Both areas have significant forests and biodiversity. The RGC's Forestry Administration is a partner in these efforts.

The United Nations Development Programme and FAO have provided funding for a national REDD Readiness Roadmap, which is being prepared by a task force led by the RGC Forestry Administration and including representatives from a variety of NGOs, The task force reports to the donor-driven Technical Working Group on Forestry and Environment. Cambodia is also a member of the Forest Carbon Partnership Facility, which supports REDD+. A newly announced Clinton Climate Initiative from the United States is also expected to support capacity building, measure the carbon offsets, establish a mobile law enforcement unit, and engage in other activities to protect Cambodia's forests.

These climate change programs and activities are still evolving. In November 2010 a "forest dialogue" meeting on REDD Readiness in Cambodia was jointly chaired by representatives from the IUCN, Women Organizing for Change in Agriculture and Natural Resource Management, RECOFTC, and the RGC Forestry Administration (Dunning and Maginis, 2010). There are many more meetings and activities related to Cambodia's REDD readiness on the calendars of NGO and government players.

Global work on REDD+ and other climate change measures will ultimately involve Cambodia. In December 2010, ministers attending the United Nations Climate Change Conference in Cancun, Mexico, signed 26 climate change agreements, including some that advance the REDD + program and provide more social and environmental safeguards. Conference participants also agreed to incorporate interim subnational REDD+ projects, such as those in Oddar Meanchey and Mondulkiri, into eventual national monitoring strategies. In addition, peat swamps as well as forests are now being considered for their climate change mitigation measures. This development will have an impact on Cambodia, a country with ample wetlands to conserve.

H. Social, Economic, and Political Context

A number of changes have occurred in the Royal Government of Cambodia since the last USAID Biodiversity Assessment was completed in 2005. Many of these changes have had a significant effect on how the country manages its biodiversity.

H1. Changes in Government Structure and Legal Framework

At the RGC level, the Ministry of the Environment is responsible for protected areas, environmental assessments, pollution monitoring, and other environmental aspects. The Department of Protected Areas and National Parks, which falls under MOE, has a mandate to establish and manage community protected areas and enforce laws that protect all the species and habitat within all national parks and protected areas. This mandate was strengthened in 2008 under a new Protected Area Law.

The Ministry of Agriculture, Forestry, and Fisheries has an agricultural focus and implements legislation and policies related to the harvest and production of natural resources, including fish and forests. MAFF is the focal point for the trade of terrestrial species under the Convention on International Trade in Endangered Species (CITES). One of MAFF's branches, the Forestry Administration, is responsible for managing the forest resources. Another branch, the Fisheries Administration, manages marine and freshwater fisheries and species. Both administrations have similar structures, with triage, division, cantonment, and local inspectorates that manage forests or fisheries, provide law enforcement and boundary demarcation, and perform other governmental functions at regional and local levels. In the mid-2000s, they were upgraded from departments.

- The Forestry Administration manages most of Cambodia's forests (the Fisheries Administration manages mangroves and flooded forests). Community forests have been informally in the works for two decades, with help from NGOs, and were formalized as part of Forestry Administration's responsibilities in 2006.

- The Fisheries Administration manages fish, aquatic invertebrates, and plants, as well as flooded forests, mangroves, sea grass beds, coral reefs. It is also responsible for all local and international fisheries harvest and marketing, and is the CITES focal point for aquatic species. In 2006, after a few years of planning, a new fisheries law disbanded more than half of the commercial fisheries and authorized the Fisheries Administration to support and manage community fisheries instead. This new law also endorsed an ecosystem approach to fisheries management and fish habitat conservation. In 2009, another new law added a list of protected aquatic species to the mix.

Since 2002, logging concessions are no longer granted, but economic land concessions (large parcels of land up to 10,000 hectares) are permitted on federally managed land, including Cambodia's remaining wild areas. The Ministry of Industry, Mining, and Energy has the power to designate economic land concessions involving mining for gold, copper, titanium, and other minerals, drilling for oil and gas, hydropower projects, and other industrial projects in areas that include national forests and protected areas. The Council for Cambodian Development can also grant economic land concessions. Likewise, the MOE can grant economic land concessions for large tourism infrastructure projects in protected areas, and MAFF can grant them for rubber, sugar cane, and other industrialized agriculture. Military authorities also have the right to build roads and stations throughout protected areas and forests.

When these large tracts are cleared for economic land concessions, Cambodian law permits the timber to be sold. By law, environmental impact assessments are required for such projects, but NGO sources, interviews, and newspaper articles point out that this rarely happens. In October 2010, the government announced the new National Forestry Program, with the goals of reducing poverty, ensuring environmental sustainability, and achieving 60 percent of forest cover by 2015.

H2. International Treaties

Cambodia is a party to a number of international treaties that protect biodiversity, forests, fisheries, wildlife, and reduce climate change that affects them. This section lists the most important of these conventions, in order of ratification.

- *1995:* Cambodia ratified the Convention on Biological Diversity, and has since produced four updates on activities to meet biodiversity goals (RGC, 2009).

- *1995:* Cambodia ratified the United Nations Framework Convention on Climate Change.

- *1997:* Cambodia ratified the Convention on International Trade in Endangered Species (CITES). Management authority for CITES lies jointly with MAFF and the MOE.

- *1997:* Cambodia joined the UNESCO Network of Biosphere Reserves in 1997. Three areas of the Tonle Sap were selected as reserves and are managed jointly by the MOE and MAFF.

- *1997:* Cambodia ratified the United Nations Convention to Combat Desertification, with MAFF serving as the focal point.

- *1999:* Cambodia ratified the Convention on Wetlands of International Importance (Ramsar Convention). Since then, three Ramsar sites have been listed, covering river system, flood plain system, and coastal mangrove habitats. The MOE is the national administrative authority for Ramsar sites.

- *2002:* Cambodia signed the Kyoto Protocol.

- *2006:* Cambodia drafted its initial National Adaptation Programme of Action to Climate Change in 2006; the MOE manages activities under the program.

In addition, Cambodia is a member state of the Mekong River Commission, the International Tropical Timber Association, and other collaborations related to tropical forests and biodiversity.

Cambodia has not ratified the Convention on the Conservation of Migratory Species of Wild Animals and the United Nations Convention on Law of the Seas (UNCLOS, 2010), and the RGC is not a member of the International Union for Conservation of Nature.

I. Conservation Organizations and Activities

Conservation of biodiversity and tropical forests receives support from a number of entities working with RGC divisions to implement high-priority actions. This section describes some of the major organizations engaged in this work; Annex G presents a more complete listing with links many of the organizations' Web sites.

I1. Donors

The Technical Working Group on Forestry and Environment, led by the Danish International Development Agency (DANIDA), coordinates donor efforts for programs related to biodiversity and forests. Not all donors in this sector are "paying members," but most attend meetings and share information. DANIDA also supports natural resources management, fisheries, and forestry through the Natural Resource Management and Livelihood Programme, ending in 2010. Details about any follow-on projects are not yet available.

The United Nations Development Programme supports a number of natural resources-focused programs and activities in Cambodia, including: programs addressing sustainable land management (about $1 million, ending in March 2011); conservation efforts in the Biosphere Reserve of the Tonle Sap (about $5 million, ending in 2011); a program

addressing biodiversity of the northern plains (about $4 million, ending in 2012); and programs focused on climate change. Some of these projects are expected to be rebid as Phase II programs.

Other donors with programs in the wider natural resources management sector include USAID, the World Bank, the Japan International Cooperation Agency, the United Nations Environment Programme, the FAO, and the German Technical Cooperation Agency.

I2. NGOs

Many international, national, and local NGOs work in Cambodia on habitat and species conservation, ecotourism, community forestry/fisheries, and many crosscutting sectors. Many have received donor support to implement their programs. Annex G lists some of these groups, but they are too numerous to detail within the confines of this assessment.

National NGOs concerned with biodiversity, forests, and communities in biodiverse areas include Mlup Baitong, Marine Conservation Cambodia, the Community Forest Alliance for Cambodia, Osmose, and many others. Annex G provides contact information, including Web sites, for these organizations.

Key international NGOs involved in biodiversity, wildlife and forests in Cambodia include BirdLife International, the Center for People and Forests, Conservation International, Fauna and Flora International, Wildlife Alliance, Wildlife Conservation Society, World Wildlife Fund, and World Fish. These organizations are members of the International Union for Conservation of Nature and the NGO Forum for Cambodia, both of which maintain offices in Phnom Penh.

Many NGOs working in the biodiversity and forestry sectors in Cambodia support community-level work to build capacity for community forestry, fisheries, and ecotourism programs with the ultimate goal of gaining RGC recognition — thus, protection — of community lands. For example:

- In the Prey Lang Forest area, some initial efforts are underway to link community forestry programs into a wider network. The goal of such a network is to enable communities to exert greater influence in protecting large areas of forested land.

- Some ecotourism efforts are training villagers in English, clean food preparation, and other skills that can be transferred out of the village. The presence of tourists in these areas provides some protection against large-scale development.

Some NGOs also carry out research and monitoring of threatened wildlife habitats and species, conduct faunal and floral surveys, and work at the landscape scale in support of conservation efforts. Most of these organizations are aware of their programs' links with global climate change initiatives and are hoping to receive further support through new channels (e.g., REDD).

Wildlife Alliance, with a mission that includes support for species and community conservation, has taken a different approach, one that already seems to be paying off. When issues arise — for example, when hydropower plants or mines are proposed in forested areas — Wildlife Alliance organizes a helicopter tour to allow senior RGC officials to view the area and observe potential impacts. The tour includes stopovers in local communities, where hundreds of villagers often turn out to show their concern. The *Phnom Penh Post* (November 18, 2010) reported that Wildlife Alliance took officials to see a proposed titanium mine site in a protected area that supports community ecotourism activities — the RGC is reported to be reconsidering the idea.

I3. Universities

Two universities in Cambodia have globally recognized programs, in English, teaching biology and natural resource management.

- *The Royal University of Phnom Penh*, with support from Fauna and Flora International, the MacArthur Foundation, and the Darwin Initiative of the United Kingdom, offers an M.A. program in conservation biology. Since the university began offering this degree program in 2005, 14 students have graduated. Some have gone on to obtain Ph.D.s in Australia, Thailand, and Japan; others have found homes in the international NGO sector. The conservation program is also home to the Center for Biodiversity Conservation, which publishes the *Cambodian Journal of Natural History* and houses the first natural history museum and herbarium in the country, also with donor and NGO support.

- *The Royal University of Agriculture* will offer a new M.A. program in natural resources management in 2011, in collaboration with the Royal University of Phnom Penh.

I4. Other Biodiversity-Related Institutions

Few institutions in Cambodia are conducting biodiversity and forestry research outside of aspects relevant to agriculture and aquaculture. A new Center for Marine Biology is envisioned, but does not yet exist. Aside from the small collections at the Center for Biodiversity Conservation at the Royal University of Phnom Penh, there are no natural history museums.

Cambodia has two captive animal facilities with successful animal rehabilitation and native species breeding programs.

- *The Phnom Tamao Wildlife Rescue Center*, located outside Phnom Penh, is run by the RGC but receives capacity building support from the Wildlife Alliance. A full-time Wildlife Alliance staff member works at the zoo, manages the staff, and designs and operates captive breeding and wildlife rescue and rehabilitation programs. The Wildlife Rescue Team, operated by Wildlife Alliance out of this zoo, works closely with the RGC and has been able to rescue snared or

troublemaking elephants (including one with a prosthetic foot that now lives at the facility). Many pileated gibbons rescued from illegal owners now reproduce at the zoo, and the only captive hairy-nosed otter in the world is also maintained here, hopefully to be joined by a mate.

- *The Angkor Center for Conservation of Biodiversity*, located north of Siem Reap, has a cooperative arrangement with the RGC and is supported primarily by the Munster Zoo in Germany and private donors. It has been operating as an animal rescue, rehabilitation, and breeding program since 2007. The facility holds injured and confiscated native animals; once healthy, those that can be returned to the wild are released in the surrounding forest, which is protected. Communities around the center are engaged in conservation activities and hunting in the immediate area no longer occurs. The center has successful captive breeding programs for green peafowl, pileated gibbons, and a number of species of water snakes and turtles.

I5. Private Sector

The private sector's primary interest in biodiversity and tropical forests in Cambodia is resource extraction and obtaining government-granted economic land concessions in remaining forested land. However, a few good examples of the private sector's role in conservation, do exist in the marine field. Dive operators in Sihanoukville help local communities protect the reefs that bring divers and their income to the area. Ecotourism options in the north Tonle Sap also provide income and outlets for handicraft projects. Other community-based ecotourism activities exist elsewhere; for example, some private companies with an interest in conservation process and market honey, rattan, and other products extracted from wild forests

SECTION III

Threats, Root Causes, and Actions Needed to Conserve Cambodia's Biodiversity and Tropical Forests

Threats to biodiversity and tropical forests in Cambodia — and throughout the world — stem from "root causes" related to the economic, social and political climates that manifest as "direct threats" on the ground. This report discusses both aspects, using information our assessment team gained through numerous interviews, reviews of numerous documents, and select field visits.

The following sections describe biodiversity and forest conservation needs in Cambodia addressing the root causes. Successfully managing the root causes will help minimize the direct threats. The threats, causes, and necessary actions listed here have not been prioritized; such a project would be best accomplished by a dedicated group of conservation organizations and individuals working in Cambodia.

A. Direct Threats

Land conversion. The RGC leases economic land concessions, including some tracts that include thousands of hectares, to private companies for rubber plantations, agriculture, mining, large-scale tourism, and other economic activities (see Annex C, Exhibit C-2). According to latest government data, 85 companies have leased a total of 956,690 hectares in 16 provinces for these purposes (RGC, 2010).

The RGC officially owns all forest lands, including the forest estate managed by the Forestry Administration and land that is listed as a protected area under the MOE. Regardless of how this land is classified, there is substantial conversion of forest to agriculture and other uses. The assessment team observed rubber and sugarcane fields in recently forested land, and the villagers and NGOs we interviewed — and local newspapers — all reported similar conversion of forest lands. We found the following notice on the Internet:

> We have 10000(ha) land in Cambodia ready for cut down the timber. The land still forest 50% rose wood and other mixed. We can supply 1000,000m 3 for 5 years contract. (Tran-Shan International, 2010)

Dams, roads, and infrastructure. Hydropower plants and reservoirs are also built in protected areas and planned for a number of areas, even the mainstream of the Mekong River (see Annex C, Exhibit C-2). Roads and infrastructure in natural areas are also opening up forest land to further development (for military operations and other reasons). For example, a Chinese company working in Koh Kong Province gave our team permission to drive up a new road the company had built to see a massive hydropower project under construction on the mountain. This construction project is on "community forest land" above a village that NGOs have engaged to manage the forests (the NGOs include Pact, which has USAID funding). Many hectares had been cleared and built over.

Coastal development. Efforts to promote increased tourism along Cambodia's coast have resulted in recent granting of economic land concessions for tourist resorts and other infrastructure projects along stretches of inhabited coastline and on many offshore islands. One large tourist resort managed by Ream Tourist Development is being built in Ream National Park, and other five-star resorts are in the works on nearby islands of Koh Sramaoch, Koh Rung, and Hi Puos. A few years ago, a similar interest in tourism led to the construction of large hotels in Siem Reap. These hotels have low occupancy, and some remain unfinished (Jackson, 2010). If the new developments proceed in the same manner as other large-scale economic land concessions in Cambodia, the impact on fragile environments and local residents is likely to be significant.

Sand mining in waterways. As forests are degraded for development, a similar situation is occurring in Cambodia's waterways and coastal areas. The assessment team observed sand extraction operations in all the coastal rivers they encountered, some impacting the waterways of Peam Krasaop Wildlife Sanctuary in Koh Kong Province, and others impacting Ream National Park near Sihanoukville. Extensive sand mining changes the ecosystem, damages fishing for local residents, and may undermine houses built near river banks. We heard about this whenever we talked to coastal villagers and NGOs working in coastal areas.

Overfishing and illegal fishing techniques. Without adequate data, it is difficult to assess the extent of illegal fishing practices and overfishing in general. A recent report by the director of Marine Conservation Cambodia (Ferber, 2010) gives details of the situation in the M'Pai Community Protected Fishing Area, and is most likely illustrative of the overall situation along the coast. Illegal trawling, crabbing, and air-supplied fishing and coral harvesting are rampant in the area. Communities that once relied almost entirely on fishing have seen their catches reduced, and have had to diversify into other livelihoods to survive.

Illegal harvest of forest products. Although cutting timber for sale is illegal, economic land concessions clearing forest areas are allowed to sell the timber — the number of logs sold in this way is unclear. In addition, "luxury wood" such as rosewood (*Dalbergia cochinchinensis*) is widely and illegally harvested. (A pile of confiscated rosewood sits in the forestry cantonment yard in Siem Reap.) Because of its high value, blocks of rosewood are often transported under the floorboards of cars or other small vehicles. The November 22, 2010, issue of the *Cambodian Daily News* reported on an illegal shipment of rosewood that had been hidden in a truck carrying boat racers to the Water Festivals. At Phnom Samkos Wildlife Sanctuary in the Cardamom Mountains, and in other sites studied by Fauna and Flora International, sassafras (*Cinnamomum parthenoxylon*) is illegally harvested and distilled in the forest (often causing forest fires) to make a raw ingredient of the drug Ecstasy. Many other examples exist.

Illegal wildlife trade. The international NGOs we met with noted the lack of current data on illegal wildlife trade as a major problem in Cambodia. Permitted "monkey farms" in Cambodia have permits to export "captive-bred" monkeys for overseas research facilities. However, Wildlife Alliance staff visiting these facilities could not find documentation to

support the number of animals that were supposedly bred there. Pangolins, seahorses, and other species with a market (in China and elsewhere) for their presumed medicinal properties are all but gone in the wild. A number of gibbons, other monkeys, and small cats have been placed at the Phnom Tamao Wildlife Rescue Center after being confiscated.

The illegal wildlife trade also threatens human and domestic animal health (Karesh et al., 2007). Wildlife trade puts people in close contact with species that usually maintain a distance from humans. In addition, scraps fed to domestic animals and animals consumed as "bush meat" or used for their "medicinal value" provide an undue risk of cross-species disease transmission. According to a 2007 report, "Wildlife Trade and Global Disease Emergence" (Karesh, et al., 2007), since 1980 more than 35 new infectious diseases have emerged in humans, some of which can be traced to aspects of illegal wildlife trade. For example, consumption of nonhuman primates is thought to be a precursor to HIV/AIDS, and the SARS-associated coronavirus has been linked to international trade in small carnivores. In Cambodia, illegal animal trade is an ongoing threat to the species involved and to the end-line human consumers.

Exotic species. In many countries, exotic invasive species are seen as a threat to native biodiversity; in Cambodia, however, this perspective is not readily apparent. Fisheries administrators provide tilapia, grass carp, and other non-native species for aquaculture projects, and many of these species escape and out-compete wild species. In addition, water hyacinths and other invasive plants have become a problem for the Tonle Sap. As part of a push for increased agricultural productivity, Cambodian farmers are growing hybrid forms of rice and other crops, a practice that is resulting in the disappearance of many valuable local strains. The survival of the endangered native Siamese crocodiles (*Crocodylus siamensis)* has been undermined by interbreeding with hybrid species that escape from the crocodile farms (many unpermitted) on which they are raised.

B. Root Causes

Direct threats to biodiversity are driven by institutional, social, and political factors. The interviews we conducted and the documents we reviewed during this assessment indicate a number of root causes hampering Cambodia's efforts to conserve biodiversity and forests. This section discusses some of the major root causes.

Lack of financial transparency. In some situations, a lack of transparency characterized financial arrangements related to the extraction and use of natural, mineral, and water resources in Cambodia. When conducting this assessment the revenue chain from depletion of biodiversity and forests and the degradation of the environment through sand extraction and the like were unclear. Citizens living around degraded forests and waterways are witnessing the disappearance of the natural resources they depend on, and apparently receiving no clear benefits, only harm, from that disappearance.

Lack of knowledge and awareness. Students at all grade levels receive little, if any, training in ecology or conservation. Though people living close to the forests understand the value of these resources, they have little knowledge of how to manage them. At the

government level, there seems to be little awareness or concern about the effects of massive resource extraction on global warming or on future generations. Until recently, there was no museum of natural history and no advanced degree program in conservation biology or natural resource management. There are no internationally recognized venues for raising conservation awareness — aquariums, herbariums, botanic gardens, or zoos with strong education programs for the public.

Weak human rights. A recent report by the Indigenous People NGO Network (2010) details the weak rights of those people living close to forests and other biodiversity-rich rural areas. According to this study, the Land Law is not rigorously enforced and citizens are not allowed full and equal roles in decision-making. Our interviews with villagers and NGOs revealed cases in which people were moved from their land, or sold land that they did not have the right to sell. One category of land, called a "social economic concession," is used to describe where people are moved to when their own homes are taken over. Such cases were evident even in Phnom Penh — at the time of this writing, Beoung Kok Lake in the city center was being filled in for more urban development and long standing residents were being displaced.

Conflicting jurisdictions. The different mandates and conflicting jurisdictions of different RGC agencies and entities inhibit Cambodia's progress in natural resource and biodiversity conservation. Powerful entities such as the Ministry of Industry, Mining and Energy have the ability to promote mines and related extraction projects, regardless of an area's protected status as defined by the MOE. The mandates of the MOE, which is responsible for protected areas and national parks, overlaps with that of MAFF which is responsible for forests and fisheries in the same areas. Jurisdiction over landscapes is also somewhat muddled, as is the case in Prek Toal Wildlife Sanctuary, where the MOE is responsible for migratory and breeding birds, while MAFF has responsibility for managing the flooded forests and fisheries that form their habitats.

Lack of enforcement and follow-through. Although the policy and legal framework is in place and more laws are being considered, there is still a strong need for enforcement and follow-through. Illegal hunting and logging, use of illegal fishing gear, and other harmful practices present direct threats to Cambodia's biodiversity, even with laws prohibiting them. The lack of coordination between MAFF, the MOE, and the court system exacerbates this problem. The director of one national park told the assessment team that as fast as he could locate and detain illegal high-value wood and wildlife harvesters, they were released by the legal system with no further action taken against them.

Poverty. According to 2004 data collected by the World Food Program (2010), about 35 percent of Cambodia's population lives below the national poverty line, and most of those live in rural areas. Poverty is always a factor in the mismanagement of biodiversity and forests. In Cambodia, however, most people we interviewed, from international consultants to village heads, viewed outside influences as greater threats to biodiversity and forests. Often, people from other areas are the ones who engage in illegal hunting, fishing, or luxury wood harvesting in community forests or community fishing areas.

With increased forest clearing for settlement, agriculture, and economic land concessions, more people who once could rely on fish and forest resources have become even poorer.

C. Actions Necessary to Conserve Biodiversity in Cambodia

Efforts to address the root causes of threats to Cambodia's biodiversity will also help mitigate the direct threats to biodiversity conservation in Cambodia. Exhibit 6 presents illustrative, preliminary needs for make these efforts possible. Specific program recommendations and activity design will require a more thorough assessment and broad-based efforts.

Exhibit 6. Illustrative Needs for Biodiversity Conservation in Cambodia: A Preliminary Listing

Root Cause	Needs
Lack of Financial Transparency	• Ensure that plans for economic land concessions, hydropower schemes, and other development projects are fully documented, that environmental impact assessments are conducted by outside experts and made public, that the public has the opportunity to comment on the projects, and that the government considers those comments before any projects are approved. • Make financial information relevant to forests, fisheries, and the sale of other biological resources available to the public. • Develop a transparent trust-fund mechanism managed jointly by the government, donors, and NGOs that provides resources for biodiversity and forest conservation measures.
Lack of Knowledge and Awareness	• Develop the capacity of technical experts, print and broadcast media, and the wider journalism community to report on biodiversity conservation and environmental issues. • Support efforts to study stocks of fish, trees, non-timber forest products, and other natural resources; make this information publicly available; and use the information to set sustainable yield levels. • Develop public awareness campaigns that disseminate information about biodiversity and overall environmental conservation through all media outlets. • Support programs that bolster the curriculum at all grade levels to include conservation components, and support informal "EcoClubs" to supplement formal education, especially in target communities around forests and other areas of rich biodiversity. • Support programs that demonstrate and educate Cambodian government officials about the long-term consequences of unplanned development.
Weak Human Rights	• Bolster support for civil society organizations and communities in forests, along waterways, and in other areas of rich biodiversity to increase civil society's voice and power around land tenure and resource extraction issues. • Support community forestry, fisheries, and ecotourism programs that give communities government-recognized land tenure rights and control over natural resources.

Root Cause	Needs
Conflicting Jurisdictions	• Harmonize policies related to biodiversity and biological resource management among involved ministries and agencies. • Support efforts to ensure that areas determined to be "protected" with rich biodiversity and forests are also protected from economic land concessions, hydropower project, mining, and other destructive activities. • Expand support to strengthen the MOE, MAFF, and their agencies to effectively carry out their mandates to protect and sustainably manage the resources under their domains.
Lack of Enforcement and Follow-Through	• Dedicate more human, management, and financial resources to the dissemination and enforcement of laws related to hunting, fishing, and other biological resource extraction activities. • Provide additional support for rangers, guards, and others working in forests and biodiverse areas, and empower them to be effective. • Support the judicial system to enforce natural resources laws and provide appropriate penalties for transgressors at all income levels. • Provide policy, technical, and financial support for the development of the proposed new wildlife law, to ensure a stronger legal framework for wildlife protection.
Poverty	• Enable communities to benefit more fully from protection of their natural areas through more support for alternate livelihoods, such as ecotourism and handicraft production, and for MSMEs. • Ensure that local people obtain greater benefits from natural resources by enhancing value chains for natural products. • Compensate communities for preserving their forests by supporting programs that provide payment for environment services through REDD+ or other mechanisms. • Support the study of the effects of global climate change on impoverished communities living in and around forests and other biodiverse areas and provide options that will enable these communities to adapt.

SECTION IV

Extent to Which the Actions Proposed by USAID Meet the Identified Needs

A. Assessment of Current USAID/Cambodia Programs

USAID/Cambodia's 2007-2010 Strategy (USAID, 2006) is coming to a close with a number of ongoing activities under three strategic objectives:

- *Strategic Objective 1:* Improved health services in HIV/AIDS and infectious diseases as well as in maternal, child and reproductive health
- *Strategic Objective 2:* Increased relevance, quality, and access to education
- *Strategic Objective 3:* Improved political and economic governance

This strategy also groups programs under the crosscutting themes of transparency and access to information; linkages; and gender concerns.

A new mission strategy is under development, but no written materials were available for review by this assessment team. A verbal briefing by the mission director indicated that similar activities will be included in the new strategy but they will be regrouped. A major new agriculture and natural resources management initiative, Helping Address Rural Vulnerabilities and Ecosystem Stability (HARVEST), due to begin in late 2010, will be the mission's flagship food security and environment program.

For the purposes of this assessment, we consider ongoing activities under the three strategic objectives and provide recommendations and cautions (if any) for their future implementation. In addition, we have included notes on the crosscutting issue of gender.

In addition, although there are as yet no details on the HARVEST implementation plan, we assess some illustrative activities mentioned in the HARVEST statement of work and provide recommendations and cautions based on the findings of this tropical forestry and biodiversity (118/119) assessment.

This assessment, prepared for USAID/Cambodia, and only evaluates this mission's current and planned programs. Consideration of the programs of the Regional Development Mission for Asia, USAID/Washington, and the U.S. State Department are beyond the scope of this assignment.

A1. Strategic Objective 1: Improved Health Services in HIV/AIDS and Infectious Diseases as Well as in Maternal, Child and Reproductive Health

Work under this strategic objective is relevant to biodiversity and tropical forests only to the degree that the people in areas living in and around biodiverse areas are healthier,

with appropriate birth spacing and thus, hopefully, strong enough to access and sustainably use their biodiversity resources. It does not directly address any needs identified in the assessment.

Recommendations and cautions. When possible, communities around fragile natural landscapes could be targeted for health programs, especially those communities already engaged in community forestry, fisheries and ecotourism endeavors. As the health of these community members is improved, they will have more strength to fulfill resource protection, sustainable use and advocacy goals that are necessary to protect the forests and other fragile landscapes.

No cautions are identified under this strategic objective.

A2. Strategic Objective 2: Increased Relevance, Quality, and Access to Education

The work under this strategic objective is more directly relevant to biodiversity and tropical forests, to the degree that curriculum development programs include biology, ecology and conservation at any grade levels and that nonformal educational venues teaching environmental ethics (e.g., Nature Clubs) are supported in biodiverse areas. Improved work force components may also be relevant, if alternate income-generating programs (e.g., ecotourism and handicrafts production from sustainable natural products) are encouraged. Such activities could address the "lack of knowledge and awareness" root cause.

Recommendations and cautions. More work is needed to bring biology and conservation issues into the curriculum at all grade levels and to support informal EcoClubs in targeted communities. It is a well-documented phenomenon that children that are educated with a conservation message ultimately can influence their parents and also the next generation to come. These efforts are very weak in Cambodia, and more donor support is needed. No cautions are recognized under this strategic objective.

A3. Strategic Objective 3: Improved Political and Economic Governance

The bulk of biodiversity and forestry related activities currently supported by USAID/Cambodia fall under this strategic objective.

Anticorruption measures, judicial reform, human rights, advocacy building, all of these are needed in the field of biodiversity conservation and tropical forest management, as well as in most other aspects of Cambodian life. USAID/Cambodia's programs with the East-West Management Institute address an important need in the biodiversity and forestry sectors, Cambodians for Resource Revenue Transparency. As increased leasing of economic land concessions occurs in fragile landscapes and some protected areas, the environment is being severely exploited, but there is little or no transparency revealing the money chain. The assessment team encourages all efforts and USAID support in these areas, which directly respond to the findings of this assessment and help address three root causes — "weak human rights," "lack of financial transparency," and "conflicting jurisdictions."

Program Component 5, "Improve Sustainable Management of Natural Resources," has the most direct relevance to the findings of this assessment. Biodiversity earmarks fall under this component and have been used in recent years to enhance the USAID MSME II/Business Enabling Environment Project's activities related to wild products (e.g., resins and honey). These activities provide rural villagers with income and, when the forests are managed sustainably, help protect the natural biodiversity. The development of community forestry, fishery and ecotourism projects in and around forests with rich biodiversity promote sustainable use of natural resources, provide villagers with livelihoods and a voice in the management and protection of their environment, and ultimately aim to give them government-recognized tenure to their land. These activities directly address two root causes, "poverty" and "lack of knowledge and awareness."

Recommendations and cautions. Efforts to support and encourage community forestry, fisheries and ecotourism activities should be continued and strengthened in the final years of MSME. Where possible the communities chosen for capacity building efforts should be in and around globally recognized biodiversity rich areas with remaining intact forests, such as Prey Lang Forest, and the Cardamom Mountains. Networks of villages engaged in community forestry and ecotourism surrounding such areas as Prey Lang Forest should be encouraged and supported with the goal of getting government support for protection of the entire area, beyond small bits and pieces.

From a biodiversity viewpoint, caution is necessary when expanding aquaculture activities. The most commonly farmed fish (e.g., some carp, catfish, and tilapia) are exotic species in Cambodia; when released into connected water bodies, they pose a risk to native species and ecosystems. Contained ponds without aquatic connection to natural bodies of water pose no such risk and are an acceptable source of protein for the communities that manage them.

A4. Crosscutting Issue: Gender

When this report was written, another team had just completed a gender assessment for USAID/Cambodia. Although the results of this assessment were unavailable, at the mission's request we have included a few points on gender in this report.

According to studies by the FAO Sustainable Development Department, Cambodian women have a higher illiteracy rate than Cambodian men; in rural areas, women often have dual family and home responsibilities. In addition, women may be disproportionally affected by environmental degradation because "they are more dependent on natural resources in order to carry out their farm and household activities"[2] Farming women perform most of the fertilizing and pesticide control of crops, leading to high exposure to toxic chemicals. At the community meetings in which this assessment team participated, women were included and gave strong voice to their concerns.

[2] "Fact Sheet Cambodia: Women in Agriculture, Environment and Rural Production," FAO Sustainable Development Department, ftp://ftp.fao.org/sd/sdw/sdww/Cam.pdf. See page 3.

Women also engage in fishing, using different methods than men and often targeting smaller fish for family consumption. As these fish stocks decline, women and children's nutrition is affected. Women are often also the gatherers of non-timber forest products, especially medicinal plants, mushrooms, and items for family use; the disappearance of these commodities adversely affects all members of a rural community.

Recommendations and cautions. Crosscutting USAID programs on gender can recognize the disparate environmental issues facing women. For instance, if the new HARVEST program (see Section B) recommends fertilizer and pesticide use, particular care should be taken to educate women about safe handling, because these tasks often fall to them. Education programs targeting girls and leading them to advanced degrees in science, public policy, and the environment can help train new women to take up prominent roles in environmental management. Alternate livelihood programs can also ensure that women have other economic resources, as the natural resources on which they traditionally depend become less accessible to them. Finally, women's traditional knowledge about medicinal and economic plants, and other non-timber forest products, should also be preserved and recorded for future generations before these traditional practices discontinue.

B. Proposed HARVEST Activities

In late 2010, USAID/Cambodia will award a contract to implement HARVEST, a new project that supports USAID programs for "Feed the Future" and the "Global Climate Change Initiative." The HARVEST statement of work includes a number of program areas, all concerned broadly with food security and minimizing effects of global climate change on people and environments. Because the project work plan has not been developed, these recommendations here are illustrative and general in nature. This new activity will incorporate components related to natural resources management, climate change preparedness, food security, diversification of livelihoods, and other activities directly relevant to sustainable use and conservation of biodiversity and tropical forests. HARVEST most directly addresses two root causes, "poverty" and "lack of knowledge and awareness."

Recommendations and cautions for the HARVEST project include the following:

- With a changing climate, preserving genetic crop strains, particularly of Cambodia's principal crop (rice), may help farmers adapt to different environmental conditions and pathogens.

- Similarly, aquaculture projects should increasingly focus on the use of wild strains and species of fish, especially in areas where inundation can lead to the release of exotic species into the wild. In some areas, flowers and vegetables can be grown around rice fields, providing diversification of crops and products for market while enhancing and protecting birds, butterflies, and other species that preserve biodiversity.

- Income diversification in rural areas should include opportunities that preserve the value of natural habitats, such as ecotourism and the sustainable harvest, use, and marketing of natural produce.

- Vocational skills development relevant to ecotourism, handicraft production, and other environmentally friendly occupations should be included in the programs.

- Educational opportunities such as EcoClubs, along with proposed Agricultural Clubs, can work hand-in-hand with programs in targeted communities.

- Economic valuations of natural resources, biodiversity, and forests are necessary in project areas. Possible payment for environmental services approaches might then be applied to large-scale users of water, electricity, and other resources.

- Maintenance of natural wetlands for water-level control and filtration, natural forests as carbon sinks and cooling and other practices should be encouraged around project agricultural areas.

- Small-scale irrigation schemes should be carefully designed to handle changing water levels due to climate change and seasonal variations. It is important that such schemes do not serve to drain surrounding wetlands with important biodiversity and environmental service functions. Care should be taken in these activities to discourage additional clearing of forests and other natural areas for more cropland.

- Diverse cultivars of rice, corn, soybeans, and other crops should not be completely eradicated in the rush for new hybrid and/or genetically altered species. Some reserved cropland for crop varieties should be maintained, and if necessary, farmers should be compensated financially for growing these varieties, which may have lower values at present, but are likely to become more valuable under changing climatic conditions.

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ANNEX A

Foreign Assistance Act of 1961, Sections 118 and 119

Sec. 118[75]. Tropical Forests.

(a) IMPORTANCE OF FORESTS AND TREE COVER.-In enacting section 103(b)(3) of this Act the Congress recognized the importance of forests and tree cover to the developing countries. The Congress is particularly concerned about the continuing and accelerating alteration, destruction, and loss of tropical forests in developing countries, which pose a serious threat to development and the environment. Tropical forest destruction and loss --

(1) result in shortages, of wood; especially wood for fuel; loss of biologically productive wetlands; siltation of lakes, reservoirs, and irrigation systems; floods; destruction of indigenous peoples; extinction of plant and animal species; reduced capacity for food production; and loss of genetic resources; and

(2) can result in desertification and destabilization of the earth's climate. Properly managed tropical forests provide a sustained flow of resources essential to the economic growth of developing countries, as well as genetic resources of value to developed and developing countries alike.

(b) PRIORITIES.-The concerns expressed in subsection (a) and the recommendations of the United States Interagency Task Force on Tropical Forests shall be given high priority by the President (1) in formulating and carrying out programs and policies with respect to developing countries, including those relating to bilateral and multilateral assistance and those relating to private sector activities; and (2) in seeking opportunities to coordinate public and private development and investment activities which affect forests in developing countries.

(c) ASSISTANCE TO DEVELOPING COUNTRIES.-In providing assistance to developing countries, the President shall do the following:

(1) Place a high priority on conservation and sustainable management of tropical forests.

(2) To the fullest extent feasible, engage in dialogues and exchanges of information with recipient countries-

[75] 22 U.S.C. 2151p-1 Sec. 118 was added by sec. 301(3) of Public Law 99-529 (100 Stat. 3014).

(A) which stress the importance of conserving and sustainably managing forest resources for the long-term economic benefit of those countries, as well as the irreversible losses associated with forest destruction, and

(B) which identify and focus on policies of those countries which directly or indirectly contribute to deforestation.

(3) To the fullest extent feasible, support projects and activities

(A)which offer employment and income alternatives to those who otherwise would cause destruction and loss of forests, and

(B) which help developing countries identify and implement alternatives to colonizing forested areas.

(4) To the fullest extent feasible, support training programs, educational efforts, and the establishment or strengthening of institutions which increase the capacity of developing countries to formulate forest policies, engage in relevant land-use planning, and otherwise improve the management of their forests.

(5) To the fullest extent feasible, help end destructive slash-and-burn agriculture by supporting stable and productive farming practices in areas already cleared or degraded and on lands which inevitably will be settled, with special emphasis on demonstrating the feasibility of agroforestry and other techniques which use technologies and methods suited to the local environment and traditional agricultural techniques and feature close consultation with and involvement of local people.

(6) To the fullest extent feasible, help conserve forests which have not yet been degraded, by helping to increase production on lands already cleared or degraded through support of reforestation, fuelwood, and other sustainable forestry projects and practices, making sure that local people are involved at all stages of project design and implementation.

(7) To the fullest extent feasible, support projects and other activities to conserve forested watersheds and rehabilitate those which have been deforested, making sure that local people are involved at all stages of project design and implementation.

(8) To the fullest extent feasible, support training, research, and other actions which lead to sustainable and more environmentally sound practices for timber harvesting, removal, and processing, including reforestation, soil conservation, and other activities to rehabilitate degraded forest lands.

(9) To the fullest extent feasible, support research to expand knowledge of tropical forests and identify alternatives which will prevent forest destruction,

loss, or degradation, including research in agroforestry, sustainable management of natural forests, small-scale farms and gardens, small-scale animal husbandry, wider application of adopted traditional practices, and suitable crops and crop combinations.

(10) To the fullest extent feasible, conserve biological diversity in forest areas by

(A) supporting and cooperating with United States Government agencies, other donors (both bilateral and multilateral), and other appropriate governmental, intergovernmental, and nongovernmental organizations in efforts to identify, establish, and maintain a representative network of protected tropical forest ecosystems on a worldwide basis;

(B) whenever appropriate, making the establishment of protected areas a condition of support for activities involving forest clearance of degradation; and

(C) helping developing countries identify tropical forest ecosystems and species in need of protection and establish and maintain appropriate protected areas.

(11) To the fullest extent feasible, engage in efforts to increase the awareness of United States Government agencies and other donors, both bilateral and multilateral, of the immediate and long-term value of tropical forests.

(12) To the fullest extent feasible, utilize the resources and abilities of all relevant United States Government agencies.

(13) Require that any program or project under this chapter significantly affecting tropical forests (including projects involving the planting of exotic plant species)-

(A) Be based on careful analysis of the alternatives available to achieve the best sustainable use of the land, and

(B) take full account of the environmental impacts of the proposed activities on biological diversity, as provided for in the environmental procedures of the Agency for International Development.

(14) Deny assistance under this chapter for-

(A) the procurement or use of logging equipment, unless an environmental assessment indicates that all timber harvesting operations involved will be conducted in an environmentally sound manner which minimizes forest destruction and that the proposed activity will produce positive economic benefits and sustainable forest management systems; and

(B) actions which significantly degrade national parks or similar protected areas which contain tropical forests or introduce exotic plants or animals into such areas.

(15) Deny assistance under this chapter for the following activities unless an environmental assessment indicates that the proposed activity will contribute significantly and directly to improving the livelihood of the rural poor and will be conducted in an environmentally sound manner which supports sustainable development:

(A) Activities which would result in the conversion of forest lands to the rearing of livestock.
(B) The construction, upgrading, or maintenance of roads (including temporary haul roads for logging or other extractive industries) which pass through relatively undegraded forest lands.

(C) The colonization of forest lands.

(D) The construction of dams or other water control structures which flood relatively undegraded forest lands.

(d) PVOs AND OTHER NONGOVERNMENTAL ORGANIZATIONS.-Whenever feasible, the President shall accomplish the objectives of this section through projects managed by private and voluntary organizations or international, regional, or national nongovernmental organizations which are active in the region or country where the project is located.

(e) COUNTRY ANALYSIS REQUIREMENTS.- Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of-

(1) the actions necessary in that country to achieve conservation and sustainable management of tropical forests, and

(2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

(f) ANNUAL REPORT.- Each annual report required by section 634(a) of this Act shall include a report on the implementation of this section.

Sec. 119.[76] Renewable and Unconventional Energy Technologies. * * * [Repealed-1980]

Sec. 119.[77] Endangered Species.

[76] Footnote not informative: see original FAA Act.

(a)[78] The Congress finds the survival of many animal and plant species is endangered by over-hunting, by the presence of toxic chemicals in water, air and soil, and by the destruction of habitats. The Congress further finds that the extinction of animal and plant species is an irreparable loss with potentially serious environmental and economic consequences for developing and developed countries alike. Accordingly, the preservation of animal and plant species through the regulation of the hunting and trade in endangered species, through limitations on the pollution of natural ecosystems, and through the protection of wildlife habitats should be an important objective of the United States development assistance.

(b) [76],[79] In order to preserve biological diversity, the President is authorized to furnish assistance under this part, notwithstanding section 660[80], to assist countries in protecting and maintaining wildlife habitats and in developing sound wildlife management and plant conservation programs. Special efforts should be made to establish and maintain wildlife sanctuaries, reserves, and parks; to enact and enforce anti-poaching measures; and to identify, study, and catalog animal and plant species, especially in tropical environments.

(c) [81]FUNDING LEVEL.- For fiscal year 1987, not less than $2,500,000 of the funds available to carry out this part (excluding funds made available to carry out section 104(c)(2), relating to the Child Survival Fund) shall be allocated for assistance pursuant to subsection (b) for activities which were not funded prior to fiscal year 1987. In addition, the Agency for International Development shall, to the fullest extent possible, continue and increase assistance pursuant to subsection (b) for activities for which assistance was provided in fiscal years prior to fiscal year 1987.

(d)[79] COUNTRY ANALYSIS REQUIREMENTS.- Each country development strategy statement or other country plan prepared by the Agency for International Development shall include an analysis of

(1) the actions necessary in that country to conserve biological diversity, and

(2) the extent to which the actions proposed for support by the Agency meet the needs thus identified.

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[77] Footnote not informative.

[78] Footnote not informative.

[79] Sec. 532(e)(1) of the Foreign Operations, Export, Financing, and Related Programs Appropriations Act, 1993 (Public Law 1O2-391; 1O6 Stat. 1668),provided:
"(1) Not less than $20,000,000 of the aggregate of the funds appropriated to carry out the provisions of sections 103 through 106 and chapter 1O of part I of the Foreign Assistance Act of 1961 shall be made available for biological diversity activities, of which $5,000,000 shall be made available for the Parks in Peril project pursuant to the authority of section 119(b) of that Act; $1,500,000 shall be for the National Science Foundation's international biological diversity program; $750,000 shall be for the Neotropical Bird Conservation Initiative of the National Fish and Wildlife Foundation; and up to $2,000,000 shall be for Project Noah;"

[80] Section 533(d)(4)(A) of the Foreign Operations, Export Financing, and Related Programs Appropriations Act, 1990 (Public Law 101-167; 103 Stat. 1227), added "notwithstanding Section 660" at this point.

[81] Paras. (c) through (h) were added by Sec. 302 of Public Law 99-529 (100 Stat. 3017).

(e) [79] LOCAL INVOLVEMENT.- To the fullest extent possible, projects supported under this section shall include close consultation with and involvement of local people at all stages of design and implementation.
(f) [79] PVOs AND OTHER NONGOVERNMENTAL ORGANIZATIONS.-Whenever feasible, the objectives of this section shall be accomplished through projects managed by appropriate private and voluntary organizations, or international, regional, or national nongovernmental organizations, which are active in the region or country where the project is located.

(g) [79] ACTIONS BY AID.- The Administrator of the Agency for International Development shall

(1) cooperate with appropriate international organizations, both governmental and nongovernmental;

(2) look to the World Conservation Strategy as an overall guide for actions to conserve biological diversity;

(3) engage in dialogues and exchanges of information with recipient countries which stress the importance of conserving biological diversity for the long-term economic benefit of those countries and which identify and focus on policies of those countries which directly or indirectly contribute to loss of biological diversity;

(4) support training and education efforts which improve the capacity of recipient countries to prevent loss of biological diversity;

(5) whenever possible, enter into long-term agreements in which the recipient country agrees to protect ecosystems or other wildlife habitats recommended for protection by relevant governmental or nongovernmental organizations or as a result of activities undertaken pursuant to paragraph

(6), and the United States agrees to provide, subject to obtaining the necessary appropriations, additional assistance necessary for the establishment and maintenance of such protected areas;

(7) support, as necessary and in cooperation with the appropriate governmental and nongovernmental organizations, efforts to identify and survey ecosystems in recipient countries worthy of protection;

(8) cooperate with and support the relevant efforts of other agencies of the United States Government, including the United States Fish and Wildlife Service, the National Park Service, the Forest Service, and the Peace Corps;

(9) review the Agency's environmental regulations and revise them as necessary to ensure that ongoing and proposed actions by the Agency do not inadvertently

endanger wildlife species or their critical habitats, harm protected areas, or have other adverse impacts on biological diversity (and shall report to the Congress within a year after the date of enactment of this paragraph on the actions taken pursuant to this paragraph);
(10) ensure that environmental profiles sponsored by the Agency include information needed for conservation of biological diversity; and

(11) deny any direct or indirect assistance under this chapter for actions which significantly degrade national parks or similar protected areas or introduce exotic plant or animals into such areas.

(h) [79] ANNUAL REPORTS.- Each annual report required by section 634(a) of this Act shall include, in a separate volume, a report on implementation of this section.

ANNEX B

Statement of Work

Cambodia Biodiversity and Tropical Forestry (118/119) Assessment
Statement of Work

The Contractor shall perform the following activities:

A. Pre-travel information meetings and information gathering. Prior to traveling to the field, the contractor is expected to:

1. Hold a meeting with the Bureau Environmental Officer (BEO) in USAID/Washington's Asia Bureau to ensure full understanding of USAID environmental procedures, the role of the regional bureau in environmental compliance, and the purpose of this assignment. This would include policy decisions and approaches that BEO and agency environmental advisor are taking as per their authority under Regulation 216.
2. Gather and get acquainted with existing background information on Cambodia, such as Cambodian natural resources, geographical, ecological and biological specificities, current status of environment and biodiversity, key stakeholders and donors in environment and biodiversity, legislation related to the environment and biodiversity, and other relevant information required for the country assessment.
3. Meet or speak with key stakeholders or managers at the World Bank, and U.S.-based NGOs including World Wildlife Fund, and Wildlife Conservation Society, or other organizations involved in biodiversity conservation in Cambodia or relevant regional efforts.

B. Field a team to travel to Cambodia to conduct an overview and general analysis of Cambodia's tropical forestry and biodiversity. Upon arriving in Cambodia the team will:

1. Meet with USAID/Cambodia to get a solid understanding of Mission program goals and objectives under its proposed new strategy; expectations for this assignment and specific interests for the team, including advice and protocol on approaching USAID partners and host country organizations with respect to this assignment. The team shall be aware of sensitivities related to an assessment exercise (i.e., the potential for raising expectations, and the need to be clear about the purpose of the assessment) and will respect Mission guidance. The team will discuss organizations to be contacted and any planned site visits with the Mission and coordinate as required. USAID/Cambodia will facilitate meetings with other Mission Technical teams.
2. Hold meetings with donor organizations, NGOs, relevant government agencies, and other organizations that are knowledgeable about biodiversity and tropical

forestry conservation or are implementing noteworthy projects and gather information locally.

3. Conduct at least two site visits, which would supplement understanding of USAID's program, or of tropical forestry and biodiversity issues that arise in interviews and literature or would confirm information in previous assessments. One visit shall include a trip to Kampong Tom province to see community forestry activities and Prey Lang Forest, the largest lowland dry evergreen forest remaining in Cambodia. Another visit should be made to the Tonle Sap Lake to see fisheries and agricultural activities. The site(s) for any additional field visits, if any, will be determined by the team during the assessment in consultation with USAID/Cambodia.
4. A Gender Analysis & Assessment is being prepared in approximately the same timeframe as this report – both assessments will inform the Country Cooperation Development Strategy (CDCS) currently being prepared by USAID/Cambodia. Coordinate with the team conducting the Gender Analysis & Assessment to ensure that gender issues related to biodiversity and tropical forestry are adequately addressed in both assessments so that gender issues can be incorporated into the CDCS.

C. Assess and summarize the needs for biodiversity and tropical forestry conservation in Cambodia based on key threats and analysis of country, donor and NGO responses to meet these needs. Prepare a report on the status of biodiversity, tropical forestry, and conservation efforts in Cambodia. Report potential implications for USAID/Cambodia or other donor programming and environmental monitoring which shall define the actions necessary for conservation.

The report shall include:

1. The current status of biodiversity, tropical forests, and examination of biodiversity, tropical forests, and key watersheds and river basins with particular attention to impacts of dams on important biodiversity in Cambodia based on the most current information available.
2. Major ecosystem types, highlighting important, unique aspects of the country's biodiversity, including important endemic species and their habitats.
3. Descriptions of natural areas of critical importance to tropical forest and biodiversity conservation, such as forests, major inland lakes and river systems, wetlands, and coastal areas necessary for species reproduction, feeding or migration, if relevant. Particular attention should be given to critical environmental services and non-commercial services they provide (watershed protection, erosion control, soil, fuel wood, water conservation and amenity and recreation).
4. An overview table and map of the status and management of protected areas in Cambodia including: an inventory of all declared and proposed areas (national parks, wildlife reserves and refuges, forest reserves, marine reserves, sanctuaries, hunting preserves and other protected areas) including marine and coastal areas.

5. Descriptions of plant and animal species that are endangered or threatened with extinction. Endangered species of particular social, economic or environmental importance should be highlighted and described, as should their habitats. Technical information resources such as the International Union for Conservation of Nature (IUCN) red list and their website should be referenced for future Mission access as required. This section should not emphasize species counts, but look at the relation of endangered species and important habitat conservation areas and issues, and evaluate the pressure on those areas, including vulnerability to predicted changes in climate, and current efforts to mitigate pressures, including the participation and compliance with the Convention on International Trade in Endangered Species (CITIES) and other international efforts.
6. Recent, current, and potential primary threats to biodiversity, whether they are ecological (i.e., fire, pests), related to human use (i.e., agriculture, contamination), institutional (i.e., failed policy) or transboundary issues, as appropriate. These should emerge from a general assessment of national policies and strategies and their effectiveness, issues related to institutional capacity, trade, private sector growth, participation in international treaties, and the role of civil society.
7. Conservation efforts, their scope and effectiveness. This section also should include recent, current, and planned activities by donor organizations that support biodiversity and tropical forestry conservation, identification of multilateral organizations, NGOs, universities, and other local organizations involved in conservation, and general description of responsible government agencies. A general assessment of the effectiveness of these policies, institutions, and activities to achieve biodiversity conservation should be included. Priority conservation needs that lack donors or local support should be highlighted.
8. Analysis of the current Cambodian legislation related to tropical forestry and biodiversity. This section should include identification of laws related to protection and management of tropical forestry, biological resources and endangered species. It should also point out any differences in laws that require further harmonization. This section should also review international treaties signed and ratified, as well as those that Cambodia needs to sign in order to conserve and manage its biological resources more effectively.
9. An overview of the major biodiversity and tropical forest related activities of the commercial private sector to identify ways to better foster private sector alliances. Of interest are the norms and standards followed by those commercial entities most engaged in management and use of Cambodia's tropical forests and tracts near protected areas, including tourism developers, rubber plantations, and coffee producers. Consideration of policies promoted by the Minister of Agriculture, Forestry and Fisheries, the Minister of Environment, the Minister of Economy and Finance, and other key relevant governmental ministries should be included.

An assessment of how USAID's program and proposed country strategy plans affect biodiversity and tropical forestry. This should include a discussion of each technical area of the proposed strategy (Assistance Objectives). The report should make recommendations on where U.S. comparative advantages and capabilities are likely to have the greatest impact to meet the needs for biodiversity and tropical forestry

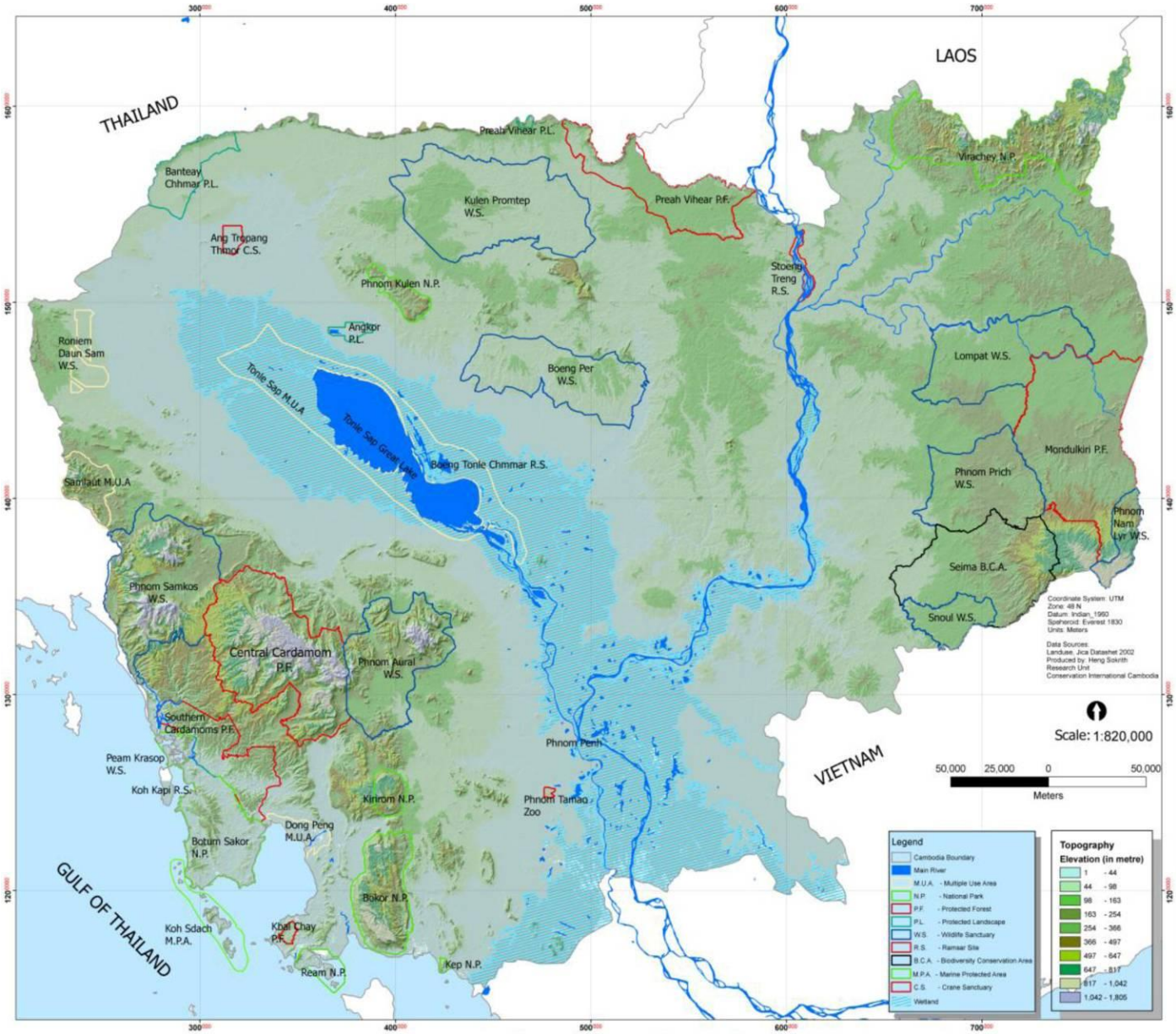
conservation in Cambodia. This could include potential opportunities for USAID to contribute to biodiversity and tropical forestry conservation, consistent with Mission program goals and objectives, through strategic objectives other than environment. These issues and recommendations should be prioritized to identify those requiring the most immediate attention.

If any perceived areas of concern related to USAID's program and its contribution or impact to negatively affect biodiversity and/or tropical forests arise during this assessment, the contractor shall provide views and suggestions directly to the Mission Environmental Officer, in the report and in a separate briefing.

ANNEX C

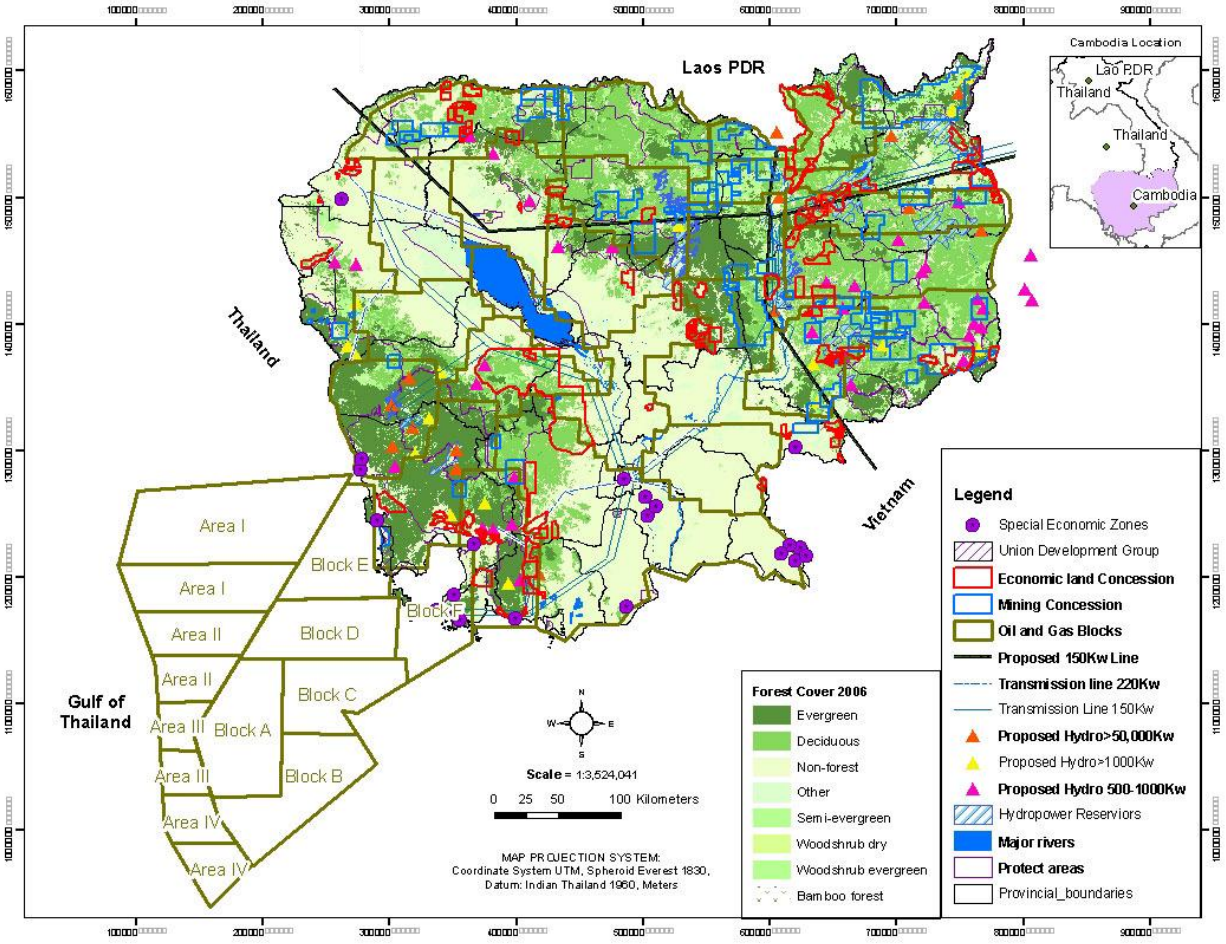
Reference Maps

Exhibit C-1. Protected Areas of Cambodia



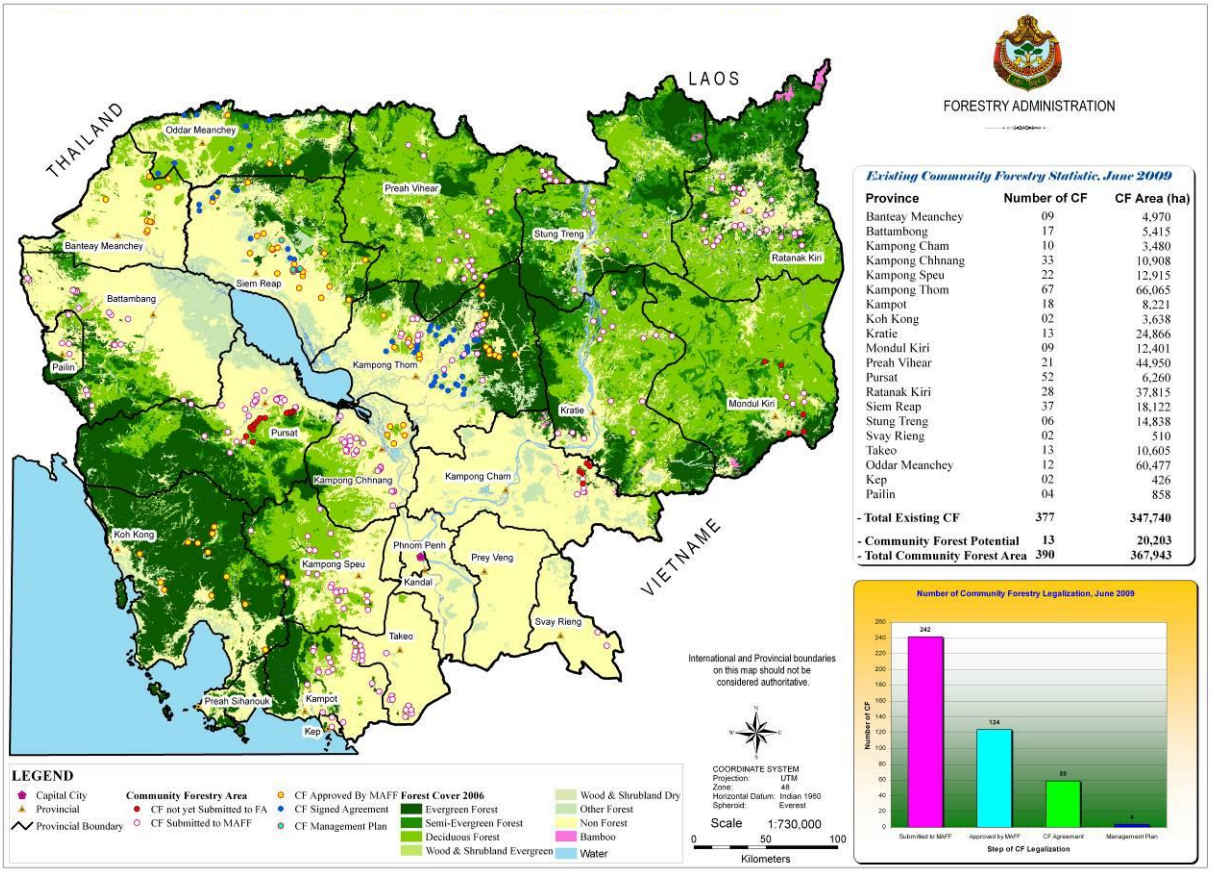
Source: Conservation International Cambodia, 2008.

Exhibit C-2. Development Trends: Large-Scale Development Projects in Cambodia



Source: Indigenous People Network, 2010, "The Rights of Indigenous Peoples in Cambodia," February 2010. http://www.sithi.org/temp.php?url=landissue/map_overlay.php&. Accessed November 2010.

Exhibit C-3. Community Forestry Areas in Cambodia, June 2009



Province	Number of CF	CF Area (ha)
Banteay Meanchey	09	4,970
Battambong	17	5,415
Kampong Cham	10	3,480
Kampong Chhnang	33	10,908
Kampong Speu	22	12,915
Kampong Thom	67	66,065
Kampot	18	8,221
Koh Kong	02	3,638
Kratie	13	24,866
Mondul Kiri	09	12,401
Preah Vihear	21	44,950
Pursat	52	6,260
Ratanak Kiri	28	37,815
Siem Reap	37	18,122
Stung Treng	06	14,838
Svay Rieng	02	510
Takeo	13	10,605
Oddar Meanchey	12	60,477
Kep	02	426
Pailin	04	858
- Total Existing CF	**377**	**347,740**
- Community Forest Potential	**13**	**20,203**
- Total Community Forest Area	**390**	**367,943**

Source: Royal Government of Cambodia Forestry Administration.

ANNEX D

IUCN Red List for Cambodia

Citation. IUCN 2010. *IUCN Red List of Threatened Species.* Version 2010.3. www.iucnredlist.org. Downloaded on October 25, 2010. For a full discussion of the codes below, see www.iucnredlist.org/documents/redlist_cats_crit_en.pdf.

Acanthastrea bowerbanki
Status: Vulnerable A4ce ver 3.1
Pop. trend: unknown

Acrocephalus tangorum (Manchurian Reed-warbler)
Status: Vulnerable C2a(ii) ver 3.1
Pop. trend: decreasing

Acropora aculeus
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora acuminata
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora anthocercis
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora aspera
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora dendrum
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora donei
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora horrida
Status: Vulnerable A4cde ver 3.1
Pop. trend: decreasing

Acropora listeri
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora microclados
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora palmerae
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora paniculata
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora papillare
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora polystoma
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora vaughani
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora verweyi
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Acropora willisae
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Aetomylaeus nichofii (Banded Eagle Ray)
Status: Vulnerable A2d+3d+4d ver 3.1
Pop. trend: decreasing

Afzelia xylocarpa
Status: Endangered A1cd ver 2.3 (needs updating)

Alveopora allingi
Status: Vulnerable A4cd ver 3.1
Pop. trend: unknown

Alveopora excelsa
Status: Endangered A4c ver 3.1
Pop. trend: unknown

Alveopora marionensis
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Alveopora verrilliana
Status: Vulnerable A4cd ver 3.1
Pop. trend: unknown

Amblypharyngodon chulabhornae
Status: Vulnerable A2ce ver 3.1
Pop. trend: decreasing

Amyda cartilaginea (Southeast Asian Softshell Turtle)
Status: Vulnerable A1cd+2cd ver 2.3

Anacropora spinosa
Status: Endangered A4ce ver 3.1
Pop. trend: decreasing

Anisoptera costata
Status: Endangered A1cd+2cd ver 2.3 (needs updating)

Aonyx cinerea (Asian Small-clawed Otter)
Status: Vulnerable A2acd ver 3.1
Pop. trend: decreasing

Aquila clanga (Greater Spotted Eagle)
Status: Vulnerable C2a(ii) ver 3.1
Pop. trend: decreasing

Aquila heliaca (Eastern Imperial Eagle)
Status: Vulnerable C2a(ii) ver 3.1
Pop. trend: decreasing

Aquilaria crassna (Eagle Wood)
Status: Critically Endangered A1cd ver 2.3 (needs updating)

Arctictis binturong (Binturong)
Status: Vulnerable A2cd ver 3.1
Pop. trend: decreasing

Astreopora cucullata
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Australogyra zelli
Status: Vulnerable A4c ver 3.1
Pop. trend: decreasing

Axis porcinus (Hog Deer)
Status: Endangered A2bcd ver 3.1
Pop. trend: decreasing

Barilius pulchellus
Status: Vulnerable A2ce ver 3.1
Pop. trend: decreasing

Batagur baska (Four-toed Terrapin)
Status: Critically Endangered A1cd ver 2.3

Bos gaurus (Indian Bison)
Status: Vulnerable A2cd+3cd+4cd ver 3.1
Pop. trend: decreasing

Bos javanicus (Banteng)
Status: Endangered A2cd+3cd+4cd ver 3.1
Pop. trend: decreasing

Bos sauveli (Grey Ox)
Status: Critically Endangered A2d;C1+2a(i);D ver 3.1
Pop. trend: unknown

Bubalus arnee (Indian Water Buffalo)
Status: Endangered A2cde+3cde+4cde; C1 ver 3.1
Pop. trend: decreasing

Cairina scutulata (White-winged Duck)
Status: Endangered A2cd+3cd+4cd; C2a(i) ver 3.1
Pop. trend: decreasing

Carcharhinus longimanus (Oceanic Whitetip Shark)
Status: Vulnerable A2ad+3d+4ad ver 3.1
Pop. trend: decreasing

Catalaphyllia jardinei
Status: Vulnerable A4cd ver 3.1
Pop. trend: unknown

Caulastrea echinulata
Status: Vulnerable A4cd ver 3.1
Pop. trend: decreasing

Cheilinus undulatus (Undulate Wrasse)
Status: Endangered A2bd+3bd ver 3.1
Pop. trend: decreasing

Chela caeruleostigmata
Status: Critically Endangered A1c ver 2.3
(needs updating)

Columba punicea (Pale-capped Pigeon)
Status: Vulnerable C2a(i) ver 3.1
Pop. trend: decreasing

Crocodylus siamensis (Siamese Crocodile)
Status: Critically Endangered A1ac ver 2.3 (needs updating)

Cromileptes altivelis (Hump-back Rock-cod)
Status: Vulnerable A4cd ver 3.1
Pop. trend: decreasing

Crossocheilus reticulatus
Status: Vulnerable A2ce ver 3.1
Pop. trend: decreasing

Cuon alpinus (Dhole)
Status: Endangered C2a(i) ver 3.1
Pop. trend: decreasing

Cuora amboinensis (Southeast Asian Box Turtle)
Status: Vulnerable A1d+2d ver 2.3

Cycas pectinata
Status: Vulnerable A2c ver 3.1
Pop. trend: decreasing

Cyphastrea agassizi
Status: Vulnerable A4c ver 3.1
Pop. trend: decreasing

Dalbergia bariensis (Burmese Rosewood)
Status: Endangered A1cd ver 2.3 (needs updating)

Dalbergia cambodiana
Status: Endangered A1cd ver 2.3 (needs updating)

Dalbergia cochinchinensis (Thailand Rosewood)
Status: Vulnerable A1cd ver 2.3 (needs updating)

Dicerorhinus sumatrensis (Sumatran Rhinoceros)
Status: Critically Endangered A2abd; C1+2a(i) ver 3.1
Pop. trend: decreasing

Dipterocarpus alatus
Status: Endangered A1cd+2cd, B1+2c
ver 2.3
(needs updating)

Dipterocarpus baudii
Status: Critically Endangered
A1cd+2cd ver 2.3
(needs updating)

Dipterocarpus costatus
Status: Endangered A1cd+2cd ver 2.3
(needs updating)

Dipterocarpus dyeri
Status: Critically Endangered
A1cd+2cd, B1+2c ver 2.3
(needs updating)

Dipterocarpus turbinatus
Status: Critically Endangered
A1cd+2cd ver 2.3
(needs updating)

Dugong dugon (Dugong)
Status: Vulnerable A2bcd ver 3.1
Pop. trend: unknown

Elephas maximus (Asian Elephant)
Status: Endangered A2c ver 3.1
Pop. trend: decreasing

Emberiza aureola (Yellow-breasted Bunting)
Status: Vulnerable A2acd+3cd+4acd
ver 3.1
Pop. trend: decreasing

Epalzeorhynchos munense (Red Fin Shark)
Status: Vulnerable A2ce ver 3.1
Pop. trend: decreasing

Epinephelus lanceolatus (Queensland Groper)
Status: Vulnerable A2d ver 3.1
Pop. trend: decreasing

Eretmochelys imbricata (Hawksbill Turtle)
Status: Critically Endangered A2bd
ver 3.1
Pop. trend: decreasing

Euphyllia ancora
Status: Vulnerable A4cd ver 3.1
Pop. trend: unknown

Euphyllia cristata
Status: Vulnerable A4cd ver 3.1
Pop. trend: stable

Galaxea astreata
Status: Vulnerable A4cd ver 3.1
Pop. trend: unknown

Goniopora planulata
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Goniopora polyformis
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Grus antigone (Sarus Crane)
Status: Vulnerable A2cde+3cde+4cde
ver 3.1
Pop. trend: decreasing

Helarctos malayanus (Malayan Sun Bear)
Status: Vulnerable A2cd+3cd+4cd ver 3.1
Pop. trend: decreasing

Heliopais personatus (Masked Finfoot)
Status: Endangered A2cd+3cd+4cd
ver 3.1
Pop. trend: decreasing

Heliopora coerulea (Blue Coral)
Status: Vulnerable A4cde ver 3.1
Pop. trend: decreasing

Heosemys annandalii (Yellow-headed Temple Turtle)
Status: Endangered A1cd+2d ver 2.3

Heosemys grandis (Giant Asian Pond Turtle)
Status: Vulnerable A1d+2cd ver 2.3

Himantura chaophraya (Giant Freshwater Stingray)
Status: Vulnerable A2bcde+3ce ver 3.1
Pop. trend: unknown

Himantura oxyrhyncha (Longnose Marbled Whipray)
Status: Endangered B1ab(iii) ver 3.1
Pop. trend: unknown

Hopea ferrea
Status: Endangered A1cd+2cd, B1+2c ver 2.3 (needs updating)

Hopea helferi
Status: Critically Endangered A1cd+2cd, B1+2c ver 2.3 (needs updating)

Hopea latifolia
Status: Critically Endangered A1c, B1+2c ver 2.3 (needs updating)

Hopea odorata
Status: Vulnerable A1cd+2cd ver 2.3 (needs updating)

Hopea pedicellata
Status: Endangered A1c+2c ver 2.3 (needs updating)

Hopea pierrei
Status: Endangered A1c+2c, B1+2c, C1, D ver 2.3 (needs updating)

Hopea recopei
Status: Endangered A1cd+2cd, B1+2c ver 2.3 (needs updating)

Hopea siamensis
Status: Critically Endangered A1c, B1+2c ver 2.3 (needs updating)

Hylobates pileatus (Pileated Gibbon)
Status: Endangered A4cd ver 3.1
Pop. trend: decreasing

Indotestudo elongata (Yellow-headed Tortoise)
Status: Endangered A1cd+2cd ver 2.3

Intsia bijuga (Moluccan Ironwood)
Status: Vulnerable A1cd ver 2.3 (needs updating)

Isopora brueggemanni
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Isopora cuneata
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Isurus oxyrinchus (Shortfin Mako)
Status: Vulnerable A2abd+3bd+4abd ver 3.1
Pop. trend: decreasing

Lepidochelys olivacea (Olive Ridley)
Status: Vulnerable A2bd ver 3.1
Pop. trend: decreasing

Leptoptilos dubius (Greater Adjutant)
Status: Endangered A2bcd+3bcd+4bcd; C2a(ii) ver 3.1
Pop. trend: decreasing

Leptoptilos javanicus (Lesser Adjutant)
Status: Vulnerable A2cd+3cd+4cd ver 3.1
Pop. trend: decreasing

Leptoseris yabei
Status: Vulnerable A4ce ver 3.1
Pop. trend: unknown

Limnonectes toumanoffi
Status: Vulnerable B1ab(iii) ver 3.1
Pop. trend: decreasing

Lobophyllia diminuta
Status: Vulnerable A4ce ver 3.1
Pop. trend: unknown

Lutra sumatrana (Hairy-nosed Otter)
Status: Endangered A2cd ver 3.1
Pop. trend: decreasing

Lutrogale perspicillata (Smooth-coated Otter)
Status: Vulnerable A2acd ver 3.1
Pop. trend: decreasing

Macaca arctoides (Stump-tailed Macaque)
Status: Vulnerable A3cd+4cd ver 3.1
Pop. trend: decreasing

Macaca leonina (Northern Pig-tailed Macaque)
Status: Vulnerable A2cd+3cd+4cd ver 3.1
Pop. trend: decreasing

Malayemys subtrijuga
Status: Vulnerable A1d+2d ver 2.3

Mangifera flava
Status: Vulnerable B1+2c ver 2.3 (needs updating)

Manis javanica (Sunda Pangolin)
Status: Endangered A2d+3d+4d ver 3.1
Pop. trend: decreasing

Millepora latifolia
Status: Vulnerable A4c ver 3.1
Pop. trend: decreasing

Montastrea multipunctata
Status: Vulnerable A4c ver 3.1
Pop. trend: decreasing

Montipora angulata
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Montipora caliculata
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Montipora cebuensis
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Montipora crassituberculata
Status: Vulnerable A4c ver 3.1
Pop. trend: decreasing

Montipora friabilis
Status: Vulnerable A4ce ver 3.1
Pop. trend: decreasing

Montipora turtlensis
Status: Vulnerable A4c ver 3.1
Pop. trend: decreasing

Montipora vietnamensis
Status: Vulnerable A4c ver 3.1
Pop. trend: decreasing

Moseleya latistellata
Status: Vulnerable A4c ver 3.1
Pop. trend: decreasing

Muntiacus vuquangensis (Large-antlered Muntjac)
Status: Endangered A2cd+3cd+4cd ver 3.1
Pop. trend: decreasing

Mycteria cinerea (Milky Stork)
Status: Vulnerable A2cd+3cd+4cd ver 3.1
Pop. trend: decreasing

Mystus bocourti
Status: Vulnerable A2ce ver 3.1
Pop. trend: decreasing

Neofelis nebulosa (Clouded Leopard)
Status: Vulnerable C1+2a(i) ver 3.1
Pop. trend: decreasing

Neophocaena phocaenoides (Finless Porpoise)
Status: Vulnerable A2cde ver 3.1
Pop. trend: decreasing

Nomascus gabriellae (Red-cheeked Gibbon)
Status: Endangered A2cd ver 3.1
Pop. trend: decreasing

Nycticebus bengalensis (Bengal Slow Loris)
Status: Vulnerable A2acd+3cd+4acd ver 3.1
Pop. trend: decreasing

Nycticebus pygmaeus (Pygmy Slow Loris)
Status: Vulnerable A2cd ver 3.1
Pop. trend: decreasing

Orcaella brevirostris (Irrawaddy Dolphin)
Status: Vulnerable A4cd ver 3.1
Pop. trend: decreasing

Osphronemus exodon (Elephant Ear Gourami)
Status: Vulnerable A2ce ver 3.1
Pop. trend: decreasing

Oxygaster pointoni
Status: Vulnerable A2ce ver 3.1
Pop. trend: decreasing

Pachyseris rugosa
Status: Vulnerable A4cd ver 3.1
Pop. trend: unknown

Pangasianodon gigas (Mekong Giant Catfish)
Status: Critically Endangered A4bcde ver 3.1
Pop. trend: decreasing

Pangasius sanitwongsei (Pangasid-catfish)
Status: Critically Endangered A2acd ver 3.1
Pop. trend: decreasing

Panthera tigris (Tiger)
Status: Endangered A2bcd+4bcd;C1+2a(i) ver 3.1
Pop. trend: decreasing

Pardofelis marmorata (Marbled Cat)
Status: Vulnerable C1+2a(i) ver 3.1
Pop. trend: decreasing

Pavo muticus (Green Peafowl)
Status: Endangered A2cd+3cd+A4cd ver 3.1
Pop. trend: decreasing

Pavona bipartita
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Pavona cactus
Status: Vulnerable A4cd ver 3.1
Pop. trend: unknown

Pavona danai
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Pavona decussata (Cactus Coral)
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Pavona venosa
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Pectinia lactuca (Lettuce Coral)
Status: Vulnerable A4cd ver 3.1
Pop. trend: unknown

Pelochelys cantorii (Frog-faced Softshell Turtle)
Status: Endangered A1cd+2cd ver 2.3

Platalea minor (Black-faced Spoonbill)
Status: Endangered C2a(i) ver 3.1
Pop. trend: decreasing

Platygyra yaeyamaensis
Status: Vulnerable A4c ver 3.1
Pop. trend: decreasing

Porites aranetai
Status: Vulnerable A4cde ver 3.1
Pop. trend: unknown

Porites cumulatus
Status: Vulnerable A4cde ver 3.1
Pop. trend: unknown

Porites eridani
Status: Endangered A4cde ver 3.1
Pop. trend: unknown

Porites napopora
Status: Vulnerable A4cde ver 3.1
Pop. trend: unknown

Porites nigrescens
Status: Vulnerable A4cde ver 3.1
Pop. trend: unknown

Porites sillimaniana
Status: Vulnerable A4cde ver 3.1
Pop. trend: unknown

Prionailurus viverrinus (Fishing Cat)
Status: Endangered A2cd+4cd ver 3.1
Pop. trend: decreasing

Pristis microdon (Largetooth Sawfish)
Status: Critically Endangered A2abcd+3cd+4bcd ver 3.1
Pop. trend: decreasing

Pristis zijsron (Narrowsnout Sawfish)
Status: Critically Endangered A2bcd+3cd+4bcd ver 3.1
Pop. trend: decreasing

Probarbus jullieni (Jullien's Golden Carp)
Status: Endangered A1ac ver 2.3 (needs updating)

Pterocarpus indicus (Burmese Rosewood)
Status: Vulnerable A1d ver 2.3 (needs updating)

Pteropus lylei (Lyle's Flying Fox)
Status: Vulnerable A4cd ver 3.1
Pop. trend: decreasing

Pygathrix nemaeus (Red-shanked Douc Langur)
Status: Endangered A2cd+3cd+4cd ver 3.1
Pop. trend: decreasing

Pygathrix nigripes (Black-shanked Douc Langur)
Status: Endangered A2cd ver 3.1
Pop. trend: decreasing

Quasipaa fasciculispina
Status: Vulnerable B1ab(iii) ver 3.1
Pop. trend: decreasing

Rhacophorus annamensis
Status: Vulnerable B2ab(iii) ver 3.1
Pop. trend: decreasing

Rhincodon typus (Whale Shark)
Status: Vulnerable A2bd+3d ver 3.1
Pop. trend: decreasing

Rhinoceros sondaicus (Javan Rhinoceros)
Status: Critically Endangered C2a(i);D ver 3.1
Pop. trend: unknown

Rucervus eldii (Eld's Deer)
Status: Endangered A2cd+3cd+4cd ver 3.1
Pop. trend: decreasing

Rusa unicolor (Sambar)
Status: Vulnerable A2cd+3cd+4cd ver 3.1
Pop. trend: decreasing

Rynchops albicollis (Indian Skimmer)
Status: Vulnerable A2cde+3cde+4cde ver 3.1
Pop. trend: decreasing

Sarcogyps calvus (Red-headed Vulture)
Status: Critically Endangered A2abce+3bce+4abce ver 3.1
Pop. trend: decreasing

Scleropages formosus (Golden Dragon Fish)
Status: Endangered A1cd+2cd ver 2.3 (needs updating)

Shorea henryana (White Meranti)
Status: Endangered A1cd ver 2.3 (needs updating)

Shorea hypochra (White Meranti)
Status: Critically Endangered A1cd ver 2.3 (needs updating)

Shorea roxburghii
Status: Endangered A1cd ver 2.3 (needs updating)

Scleropages formosus (Golden Dragon Fish)
Status: Endangered A1cd+2cd ver 2.3 (needs updating)

Shorea henryana (White Meranti)
Status: Endangered A1cd ver 2.3 (needs updating)

Shorea hypochra (White Meranti)
Status: Critically Endangered A1cd ver 2.3 (needs updating)

Shorea roxburghii
Status: Endangered A1cd ver 2.3 (needs updating)

Shorea thorelii
Status: Critically Endangered A1cd ver 2.3 (needs updating)

Siebenrockiella crassicollis
Status: Vulnerable A1cd+2cd ver 2.3

Sphyrna mokarran (Squat-headed Hammerhead Shark)
Status: Endangered A2bd+4bd ver 3.1
Pop. trend: decreasing

Stegostoma fasciatum (Leopard Shark)
Status: Vulnerable A2abcd+3cd+4abcd ver 3.1
Pop. trend: decreasing

Taeniura meyeni (Black-blotched Stingray)
Status: Vulnerable A2ad+3d+4ad ver 3.1
Pop. trend: unknown

Tenualosa thibaudeaui
Status: Endangered A1a ver 2.3 (needs updating)

Tetraodon cambodgiensis
Status: Vulnerable A2ce ver 3.1
Pop. trend: decreasing

Trachypithecus germaini (Indochinese Lutung)
Status: Endangered A2cd ver 3.1
Pop. trend: decreasing

Tringa guttifer (Spotted Greenshank)
Status: Endangered C2a(i) ver 3.1
Pop. trend: decreasing

Turbinaria bifrons
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Turbinaria mesenterina
Status: Vulnerable A4cd ver 3.1
Pop. trend: unknown

Turbinaria patula
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Turbinaria peltata
Status: Vulnerable A4cd ver 3.1
Pop. trend: unknown

Turbinaria reniformis
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Turbinaria stellulata
Status: Vulnerable A4c ver 3.1
Pop. trend: unknown

Ursus thibetanus (Himalayan Black Bear)
Status: Vulnerable A2cd+3d+4d ver 3.1
Pop. trend: decreasing

Vatica cinerea
Status: Endangered A1cd ver 2.3 (needs updating)

Viverra megaspila (Large-spotted Civet)
Status: Vulnerable A2cd+3cd ver 3.1
Pop. trend: decreasing

Wrightia lecomtei
Status: Vulnerable D2 ver 2.3 (needs updating)

Xylopia pierrei
Status: Vulnerable A1a ver 2.3 (needs updating)

(193 total that are critically endangered, threatened, vulnerable)

ANNEX E

Royal Government of Cambodia List of Threatened Terrestrial Species

No.	Scientific Name	Common Name	Cites
Group of Endangered Species			
Mammals			
1	*Axis porcinus*	Hog Deer	I
2	*Bubalus arnee*	Wild Water Buffalo	III
3	*Pseudonovibos spiralis*	Khting Vor	
4	*Ursus thibetanus*	Asiatic Black Bear	I
5	*Panthera tigris*	Tiger	I
6	*Neofelis nebulosa*	Clouded Leopard	I
7	*Bos sauveli*	Kouprey	I
8	*Elephas maximus*	Asian Elephant	I
9	*Rhinoceros sondaicus*	Javan Rhinoceros	I
10	*Cervus eldii*	Eld's Deer	I
Birds			
1	*Leptoptilos dubius*	Greater Adjutant	
2	*Pseudibis davisoni*	White-Shouldered Ibis	
3	*Pseudibis gigantea*	Giant Ibis	
4	*Cairina scutulata*	White-Winged Duck	I
5	*Sterna acuticauda*	Black-Bellied Tern	
6	*Ephippiorhynchus asiaticus*	Black-Necked Stork	
Group of Rare Species			
Mammals			
1	*Naemorhedus sumatraensis*	Southern Serow	I
2	*Ratufa bicolor*	Black Giant Squirrel	II
3	*Hylopetes alboniger*	Particoloured Flying Squirrel	
4	*Prionodon pardicolor*	Spotted Linsang	I
5	*Bos gaurus*	Gaur	I
6	*Pardofelis marmorata*	Marbled Cat	I
7	*Panthera pardus*	Leopard	I
8	*Catopuma temminckii*	Asian Golden Cat	I
9	*Ursus malayanus*	Sun Bear	I
10	*Cuon alpinus*	Dhole	II
11	*Petaurista petaurista*	Giant Flying Squirrel	
12	*Petaurista philippensis*	Indian Giant Flying Squirrel	
13	*Felis chaus*	Jungle Cat	II
14	*Pteropus hypomelanus*	Island Flying-Fox	II
15	*Arctonyx collaris*	Hog Badger	
16	*Megamuntiacus vuquangensis*	Large-Antlered Muntjac	I
17	*Bos javanicus*	Banteng	
18	*Hylobates gabriellae*	Yellow-Cheeked Gibbon	I
19	*Hylobates pileatus*	Pileated Gibbon	I
20	*Otomops wroughtoni*	Wroughton's Free-Tailed Bat	

No.	Scientific Name	Common Name	Cites
21	*Manis javanica*	Sunda Pangolin	II
22	*Lutra lutra*	Eurasian Otter	I
23	*Lutra sumatrana*	Hairy-nosed Otter	II
24	*Nycticebus coucang*	Slow Loris	II
25	*Nycticebus pygmaeus*	Pygmy Loris	II
26	*Pygathrix nemaeus*	Douc Langur	I
27	*Macaca arctoides*	Stump-Tailed Macaque	II
Birds			
1	*Buceros bicornis*	Great Hornbill	I
2	*Pavo muticus*	Green Peafowl	II
3	*Grus antigone*	Sarus Crane	II
4	*Arborophila cambodiana*	Chestnut-Headed Partridge	III
5	*Motacilla samvaesnae*	Mekong Wagtail	
6	*Milvus migrans*	Black Kite	II
7	*Limnodromus semipalmatus*	Asian Dowitcher	
8	*Houbaropsis bengalensis*	Bengal Florican	I
9	*Tringa guttifer*	Nordmann's Greenshank	I
10	*Garrulax ferrarius*	Cambodian Laughingthrush	
11	*Ploceus hypoxanthus*	Asian Golden Weaver	
12	*Amandava amandava*	Red Avadavat	
13	*Oriolus mellianus*	Silver Oriole	
14	*Esacus recurvirostris*	Great Thick-Knee	
15	*Burhinus oedicnemus*	Eurasian Thick-Knee	
16	*Leptoptilos javanicus*	Lesser Adjutant	
17	*Threskiornis melanocephalus*	Black-Headed Ibis	
18	*Aegypius monachus*	Cinereous Vulture	II
19	*Gyps indicus*	Long-Billed Vulture	II
20	*Sarcogyps calvus*	Red-Headed Vulture	II
21	*Gyps bengalensis*	White-Rumped Vulture	II
22	*Fregata andrewsi*	Christmas Island Frigatebird	
23	*Plegadis falcinellus*	Glossy Ibis	
24	*Arborophila davidi*	Orange-Necked Partridge	
25	*Ketupa zeylonensis*	Brown Fish Owl	II
26	*Ketupa ketupu*	Buffy Fish Owl	II
27	*Bubo nipalensis*	Spot-Bellied Eagle Owl	II
28	*Pelecanus onocrotalus*	Great White Pelican	
29	*Columba punicea*	Pale-Capped Pigeon	
30	*Heliopais personata*	Masked Finfoot	
31	*Caloenas nicobarica*	Nicobar Pigeon	
32	*Aceros undulatus*	Wreathed Hornbill	II
33	*Polyplectron bicalcaratum*	Grey Peacock Pheasant	II
34	*Polyplectron germaini*	Germain's Peacock Pheasant	II
35	*Phoenicopterus ruber*	Greater Flamingo	II
36	*Ciconia nigra*	Black Stork	
37	*Mycteria leucocephala*	Painted Stork	
38	*Mycteria cinerea*	Milky Stork	I
39	*Rynchops albicollis*	Indian Skimmer	
40	*Lophura diardi*	Siamese Fireback	

No.	Scientific Name	Common Name	Cites
41	*Aviceda jerdoni*	Jerdon's Baza	II
42	*Psittachula eupatria*	Alexandrine Parakeet	II
43	*Aquila clanga*	Greater Spotted Eagle	II
44	*Haliaeetus leucogaster*	White-Bellied Sea Eagle	II
Reptiles			
1	*Ophiophagus hannah*	King Cobra	II
2	*Naja kaouthia*	Monocled Cobra	II
3	*Naja siamensis*	Indochinese Spitting Cobra	II
4	*Lycodon cardarmomensis*	Cardarmom Wolf Snake	
Mammals			
1	*Tamiops maritimus*	Eastern Striped Squirrel	
2	*Tamiops rodolphii*	Cambodian Striped Tree Squirrel	
3	*Menetes berdmorei*	Berdmore's Squirrel	
4	*Rhizomys sumatrensis*	Large Bamboo Rat	
5	*Tupaia belangeri*	Northern Tree Shrew	II
6	*Dendrogale murina*	Northern Smooth-Tailed Treeshrew	II
7	*Callosciurus erythraeus*	Pallas's Squirrel	
8	*Dremomys rufigenis*	Red-Cheeked Squirrel	
9	*Callosciurus finlaysonii*	Variable Squirrel	
10	*Callosciurus caniceps*	Grey-Bellied Squirrel	
11	*Hylopetes phayrei*	Phayre's Flying Squirrel	
12	*Hylopetes spadiceus*	Red-Cheeked Flying Squirrel	
13	*Trogopterus pearsonii*	Hairy-Footed Flying Squirrel	
14	*Hemigalus owstoni*	Owston's Civet	
15	*Tragulus javanicus*	Lesser Mouse Deer	
16	*Tragulus napu*	Greater Mouse Deer	
17	*Viverra zibetha*	Large Indian Civet	III
18	*Prionailurus viverrinus*	Fishing Cat	II
19	*Canis aureus*	Asiatic Jackal	III
20	*Prionailurus bengalensis*	Leopard Cat	II
21	*Melogale personata*	Large-Toothed Ferret Badger	
22	*Pteropus lylei*	Lyle's Flying-Fox	II
23	*Pteropus vampyrus*	Large Flying-Fox	II
24	*Megaerops niphanae*	Northern Tail-less Fruit Bat	
25	*Cynopterus brachyotis*	Lesser Short-Nosed Fruit Bat	
26	*Cynopterus sphinx*	Greater Short-Nosed Fruit Bat	
27	*Macroglossus sobrinus*	Greater Long-Tongued Fruit Bat	
28	*Sus scrofa*	Wild Pig	
29	*Muntiacus muntjak*	Red Muntjac	
30	*Lepus peguensis*	Burmese Hare	
31	*(Order: CHIROPTERA)*	Bats	
32	*Hystrix brachyura*	East Asian Porcupine	
33	*Atherurus macrourus*	Asian Brush-Tailed Porcupine	
34	*Cervus unicolor*	Sambar	
35	*Martes flavigula*	Yellow-Throated Marten	III
36	*Paradoxurus hermaphroditus*	Common Palm Civet	III
37	*Viverra megaspila*	Large-Spotted Civet	III
38	*Paguma larvata*	Masked Palm Civet	III

No.	Scientific Name	Common Name	Cites
39	*Arctictis binturong*	Binturong	III
40	*Viverricula indica*	Small Indian Civet	III
41	*Arctogalidia trivirgata*	Small-Toothed Palm Civet	
42	*Herpestes javanicus*	Small Asian Mongoose	
43	*Herpestes urva*	Crab-Eating Mongoose	III
44	*Macaca fascicularis*	Long-Tailed Macaque	II
45	*Macaca nemestrina*	Pig-Tailed Macaque	II
46	*Semnopithecus cristatus*	Silvered Langur	II
Birds			
1	*Halcyon pileata*	Black-Capped Kingfisher	
2	*Halcyon coromanda*	Ruddy Kingfisher	
3	*Todiramphus chloris*	Collared Kingfisher	
4	*Ceryle rudis*	Pied Kingfisher	
5	*Halcyon smyrnensis*	White-Throated Kingfisher	
6	*Lacedo pulchella*	Banded Kingfisher	
7	*Porzana fusca*	Ruddy-Breasted Crake	
8	*Ardeola speciosa*	Javan Pond Heron	
9	*Ardeola bacchus*	Chinese Pond Heron	
10	*Dupetor flavicollis*	Black Bittern	
11	*Bubulcus ibis*	Cattle Egret	III
12	*Egretta garzetta*	Little Egret	
13	*Mesophoyx intermedia*	Intermediate Egret	III
14	*Casmerodius albus*	Great Egret	III
15	*Ixobrychus cinnamomeus*	Cinnamon Bittern	
16	*Egretta sacra*	Pacific Reef Egret	
17	*Ixobrychus sinensis*	Yellow Bittern	
18	*Cyornis tickelliae*	Tickell's Blue Flycatcher	
19	*Anthracoceros albirostris*	Oriental Pied Hornbill	II
20	*Anorrhinus tickelli*	Brown Hornbill	II
21	*Treron curvirostra*	Thick-Billed Green Pigeon	
22	*Gallirallus striatus*	Slaty-Breasted Rail	
23	*Rhipidura aureola*	White-Browed Fantail	
24	*Rhipidura albicollis*	White-Throated Fantail	
25	*Rhipidura javanica*	Pied Fantail	
26	*Sturnus burmannicus*	Vinous-Breasted Starling	
27	*Sturnus malabaricus*	Chestnut-Tailed Starling	
28	*Sturnus sturninus*	Purple-Backed Starling	
29	*Sturnus sinensis*	White-Shouldered Starling	
30	*Gallicrex cinerea*	Watercock	
31	*Ardea sumatrana*	Great-Billed Heron	
32	*Ardea cinerea*	Grey Heron	
33	*Ardea purpurea*	Purple Heron	
34	*Butorides striatus*	Little Heron	
35	*Turnix sylvatica*	Small Buttonquail	
36	*Coturnix chinensis*	Blue-Breasted Quail	
37	*Coturnix coromandelica*	Rain Quail	
38	*Coturnix japonica*	Japanese Quail	
39	*Mirafra marionae*	Indochinese Bushlark	

No.	Scientific Name	Common Name	Cites
40	*Alauda gulgula*	Oriental Skylark	
41	*Anthus cervinus*	Red-Throated Pipit	
42	*Anthus richardi*	Richard's Pipit	
43	*Anthus hodgsoni*	Olive-Backed Pipit	
44	*Mirafra javanica*	Australasian Bushlark	
45	*Anthus rufulus*	Paddyfield Pipit	
46	*Turnix suscitator*	Barred Buttonquail	
47	*Turnix tanki*	Yellow-Legged Buttonquail	
48	*Corvus macrorhynchos*	Large-Billed Crow	
49	*Phalacrocorax niger*	Little Cormorant	
50	*Phalacrocorax fuscicollis*	Indian Cormorant	
51	*Phalacrocorax carbo*	Great Cormorant	
52	*Otus sunia*	Oriental Scops Owl	II
53	*Otus spilocephalus*	Mountain Scops Owl	II
54	*Motacilla cinerea*	Grey Wagtail	
55	*Motacilla alba*	White Wagtail	
56	*Dendronanthus indicus*	Forest Wagtail	
57	*Motacilla flava*	Yellow Wagtail	
58	*Haliastur indus*	Brahminy Kite	II
59	*Tyto alba*	Barn Owl	II
60	*Nycticorax nycticorax*	Black-Crowned Night Heron	
61	*Botaurus stellaris*	Great Bittern	
62	*Gallinago gallinago*	Common Snipe	
63	*Gallinago stenura*	Pintail Snipe	
64	*Rostratula benghalensis*	Greater Painted-Snipe	
65	*Limosa lapponica*	Bar-Tailed Godwit	
66	*Limosa limosa*	Black-Tailed Godwit	
67	*Gorsachius melanolophus*	Malayan Night Heron	
68	*Sturnus nigricollis*	Black-Collared Starling	
69	*Sturnus contra*	Asian Pied Starling	
70	*Halcyon capensis*	Stork-Billed Kingfisher	
71	*Alcedo atthis*	Common Kingfisher	
72	*Ceyx erithacus*	Black-Backed Kingfisher	
73	*Alcedo meninting*	Blue-Eared Kingfisher	
74	*Tringa erythropus*	Spotted Redshank	
75	*Tringa totanus*	Common Redshank	
76	*Tringa nebularia*	Common Greenshank	
77	*Garrulax leucolophus*	White-Crested Laughingthrush	
78	*Garrulax vassali*	White-Cheeked Laughingthrush	
79	*Garrulax chinensis*	Black-Throated Laughingthrush	
80	*Pomatorhinus hypoleucos*	Large Scimitar Babbler	
81	*Garrulax monileger*	Lesser Necklaced Laughingthrush	
82	*Enicurus schistaceus*	Slaty-Backed Forktail	
83	*Nectarinia jugularis*	Olive-Backed Sunbird	
84	Hypogramma hypogrammicum	Purple-Naped Sunbird	
85	*Nectarinia calcostetha*	Copper-Throated Sunbird	
86	*Aethopyga siparaja*	Crimson Sunbird	
87	*Nectarinia asiatica*	Purple Sunbird	
88	*Dicaeum cruentatum*	Scarlet-Backed Flowerpecker	

No.	Scientific Name	Common Name	Cites
89	*Aethopyga saturata*	Black-Throated Sunbird	
90	*Dicaeum chrysorrheum*	Yellow-Vented Flowerpecker	
91	*Dicaeum agile*	Thick-Billed Flowerpecker	
92	*Zosterops erythropleurus*	Chestnut-Flanked White-Eye	
93	*Arachnothera longirostra*	Little Spiderhunter	
94	*Arachnothera magna*	Streaked Spiderhunter	
95	*Dicaeum ignipectus*	Fire-Breasted Flowerpecker	
96	*Anthreptes malacensis*	Brown-Throated Sunbird	
97	*Anthreptes singalensis*	Ruby-Cheeked Sunbird	
98	*Nectarinia sperata*	Purple-Throated Sunbird	
99	*Dicaeum concolor*	Plain Flowerpecker	
100	*Zosterops palpebrosus*	Oriental White-Eye	
101	*Pycnonotus goiavier*	Yellow-Vented Bulbul	
102	*Megalurus palustris*	Striated Grassbird	
103	*Harpactes erythrocephalus*	Red-Headed Trogon	
104	*Harpactes oreskios*	Orange-Breasted Trogon	
105	*Lonchura punctulata*	Scaly-Breasted Munia	
106	*Erythrura prasina*	Pin-Tailed Parrotfinch	
107	*Lonchura malacca*	Black-Headed Munia	
108	*Lonchura striata*	White-Rumped Munia	
109	*Acrocephalus orientalis*	Oriental Reed Warbler	
110	*Yuhina zantholeuca*	White-Bellied Yuhina	
111	*Yuhina nigrimenta*	Black-Chinned Yuhina	
112	*Urosphena squameiceps*	Asian Stubtail	
113	*Seicercus soror*	Plain-Tailed Warbler	
114	*Lanius schach*	Long-Tailed Shrike	
115	*Phylloscopus davisoni*	White-Tailed Leaf Warbler	
116	*Pteruthius flaviscapis*	White-Browed Shrike Babbler	II
117	*Phylloscopus tenellipes*	Pale-Legged Leaf Warbler	
118	*Phylloscopus fuscatus*	Dusky Warbler	
119	*Lanius cristatus*	Brown Shrike	
120	*Lanius collurioides*	Burmese Shrike	
121	*Lanius tephronotus*	Grey-Backed Shrike	
122	*Lanius tigrinus*	Tiger Shrike	
123	*Phylloscopus schwarzi*	Radde's Warbler	
124	*Alcippe grotei*	Black-Browed Fulvetta	
125	*Acrocephalus bistrigiceps*	Black-Browed Reed Warbler	
126	*Phylloscopus inornatus*	Yellow-Browed Warbler	
127	*Locustella certhiola*	Rusty-Rumped Warbler	
128	*Pomatorhinus schisticeps*	White-Browed Scimitar Babbler	
129	*malacocincla Abbotti*	Abbott's Babbler	
130	*Orthotomus cuculatus*	Mountain Tailorbird	
131	*Acrocephalus aedon*	Thick-Billed Warbler	
132	*Phylloscopus borealis*	Arctic Warbler	
133	*Napothera brevicaudata*	Streaked Wren Babbler	
134	*Locustella lanceolata*	Lanceolated Warbler	
135	*Phylloscopus coronatus*	Eastern Crowned Warbler	
136	*Phylloscopus plumbeitarsus*	Two-Barred Warbler	
137	*Pnoepyga pusilla*	Pygmy Wren Babbler	

No.	Scientific Name	Common Name	Cites
138	*Leiothrix argentauris*	Silver-Eared Mesia	
139	*Gerygone sulphurea*	Golden-Bellied Gerygone	
140	*Macronous gularis*	Striped Tit Babbler	
141	*Pellorneum tickelli*	Buff-Breasted Babbler	
142	*Bradypterus thoracicus*	Spotted Bush Warbler	
143	*Pellorneum ruficeps*	Puff-Throated Babbler	
144	*Seicercus castaniceps*	Chestnut-Crowned Warbler	
145	*Timalia pileata*	Chestnut-Capped Babbler	
146	*Malacopteron cinereum*	Scaly-Crowned Babbler	
147	*Abroscopus superciliaris*	Yellow-Bellied Warbler	
148	*Macronous kelleyi*	Grey-Faced Tit Babbler	
149	*Acrocephalus tangorum*	Manchurian Reed Warbler	
150	*Minla cyanouroptera*	Blue-Winged Minla	
151	*Cisticola juncidis*	Zitting Cisticola	
152	*Prinia polychroa*	Brown Prinia	
153	*Prinia hodgsonii*	Grey-Breasted Prinia	
154	*Prinia inornata*	Plain Prinia	
155	*Cisticola exilis*	Bright-Headed Cisticola	
156	*Prinia flaviventris*	Yellow-Bellied Prinia	
157	*Prinia rufescens*	Rufescent Prinia	
158	*Orthotomus sutorius*	Common Tailorbird	
159	*Orthotomus atrogularis*	Dark-necked Tailorbird	
160	*Tesia cyaniventer*	Grey-Bellied Tesia	
161	*Passer montanus*	Eurasian Tree Sparrow	
162	*Ploceus manyar*	Streaked Weaver	
163	*Ploceus philippinus*	Baya Weaver	
164	*Emberiza aureola*	Yellow-Breasted Bunting	
165	*Batrachostomus javensis*	Javan Frogmouth	
166	*Luscinia calliope*	Siberian Rubythroat	
167	*Luscinia svecica*	Bluethroat	
168	*Ficedula parva*	Red-Throated Flycatcher	
169	*Cyornis rubeculoides*	Blue-Throated Flycatcher	
170	*Culicicapa ceylonensis*	Grey-Headed Canary Flycatcher	
171	*Eumyias thalassina*	Verditer Flycatcher	
172	*Cyornis unicolor*	Pale Blue Flycatcher	
173	*Muscicapa dauurica*	Asian Brown Flycatcher	
174	*Cyornis hainanus*	Hainan Blue Flycatcher	
175	*Cyanoptila cyanomelana*	Blue-and-White Flycatcher	
176	*Muscicapa sibirica*	Dark-Sided Flycatcher	
177	*Ficedula hodgsonii*	Slaty-Backed Flycatcher	
178	*Ficedula mugimaki*	Mugimaki Flycatcher	
179	*Niltava davidi*	Fujian Niltava	
180	*Ficedula westermanni*	Little Pied Flycatcher	
181	*Ficedula hyperythra*	Snowy-Browed Flycatcher	
182	*Muscicapa williamsoni*	Brown-Streaked Flycatcher	
183	*Niltava grandis*	Large Niltava	
184	*Cyornis banyumas*	Hill Blue Flycatcher	
185	*Passer flaveolus*	Plain-Backed Sparrow	
186	*Passer domesticus*	House Sparrow	

No.	Scientific Name	Common Name	Cites
187	*Chloropsis aurifrons*	Golden-Fronted Leafbird	
188	*Chloropsis cochinchinensis*	Blue-Winged Leafbird	
189	*Aegithina lafresnayei*	Great Iora	
190	*Aegithina tiphia*	Common Iora	
191	*Pericrocotus divaricatus*	Ashy Minivet	
192	*Pericrocotus cinnamomeus*	Small Minivet	
193	*Pericrocotus flammeus*	Scarlet Minivet	
194	*Pericrocotus cantonensis*	Swinhoe's Minivet	
195	*Pericrocotus solaris*	Grey-Chinned Minivet	
196	*Oriolus chinensis*	Black-Naped Oriole	
197	*Oriolus xanthornus*	Black-Hooded Oriole	
198	*Irena puella*	Asian Fairy Bluebird	
199	*Oriolus traillii*	Maroon Oriole	
200	*Anastomus oscitans*	Asian Openbill	
201	*Temnurus temnurus*	Ratchet-Tailed Treepie	
202	*Urocissa erythrorhyncha*	Red-Billed Blue Magpie	
203	*Garrulus glandarius*	Eurasian Jay	
204	*Cissa chinensis*	Common Green Magpie	
205	*Dendrocitta vagabunda*	Rufous Treepie	
206	*Cissa hypoleuca*	Indochinese Green Magpie	
207	*Himantopus himantopus*	Black-winged Stilt	
208	*Rallina eurizonoides*	Slaty-Legged Crake	
209	*Porzana pusilla*	Baillon's Crake	
210	*Porzana cinerea*	White-Browed Crake	
211	*Eudynamys scolopacea*	Asian Koel	
212	*Clamator coromandus*	Chestnut-Winged Cuckoo	
213	*Cuculus micropterus*	Indian Cuckoo	
214	*Hierococcyx fugax*	Hodgson's Hawk Cuckoo	
215	*Surniculus lugubris*	Drongo Cuckoo	
216	*Cacomantis sonneratii*	Banded Bay Cuckoo	
217	*Hierococcyx sparverioides*	Large Hawk Cuckoo	
218	*Chrysococcyx maculatus*	Asian Emerald Cuckoo	
219	*Cuculus saturatus*	Oriental Cuckoo	
220	*Cacomantis merulinus*	Plaintive Cuckoo	
221	*Chrysococcyx xanthorhynchus*	Violet Cuckoo	
222	*Phaenicophaeus tristis*	Green-Billed Malkoha	
223	*Hirundo rustica*	Barn Swallow	
224	*Hirundo smithii*	Wire-Tailed Swallow	
225	*Apus pacificus*	Fork-Tailed Swift	
226	*Artamus fuscus*	Ashy Woodswallow	
227	*Hirundo daurica*	Red-Rumped Swallow	
228	*Delichon dasypus*	Asian House Martin	
229	*Apus affinis*	House Swift	
230	*Cypsiurus balasiensis*	Asian Palm Swift	
231	*Fregatta ariel*	Lesser Frigatebird	
232	*Riparia paludicola*	Plain Martin	
233	*Riparia riparia*	Sand Martin	
234	*Hirundapus giganteus*	Brown-Backed Needletail	
235	*Hirundapus cochinchinensis*	Silver-Backed Needletail	

No.	Scientific Name	Common Name	Cites
236	*Hirundapus caudacutus*	White-Throated Needletail	
237	*Hirundo striolata*	Striated Swallow	
238	*Hemiprocne coronata*	Crested Treeswift	
239	*Collocalia germani*	Germain's Swiftlet	
240	*Collocalia maximus*	Black-Nest Swiftlet	
241	*Collocalia fuciphaga*	Edible-Nest Swiftlet	
242	*Hirundo tahitica*	Pacific Swallow	
243	*Merops leschenaulti*	Chestnut-Headed Bee-Eater	
244	*Merops viridis*	Blue-Throated Bee-Eater	
245	*Merops philippinus*	Blue-Tailed Bee-Eater	
246	*Merops orientalis*	Green Bee-Eater	
247	*Nyctyornis athertoni*	Blue-Bearded Bee-Eater	
248	*Vanellus cinereus*	Grey-Headed Lapwing	
249	*Vanellus indicus*	Red-Wattled Lapwing	
250	*Vanellus duvaucelii*	River Lapwing	
251	*Picus rabieri*	Red-Collared Woodpecker	
252	*Gecinulus grantia*	Pale-Headed Woodpecker	
253	*Blythipicus pyrrhotis*	Bay Woodpecker	
254	*Mulleripicus pulverulentus*	Great Slaty Woodpecker	
255	*Picus chlorolophus*	Lesser Yellownape	
256	*Picus vittatus*	Laced Woodpecker	
257	*Sitta frontalis*	Velvet-Fronted Nuthatch	
258	*Sitta castanea*	Chestnut-Bellied Nuthatch	II
259	*Dendrocopus mahrattensis*	Yellow-Crowned Woodpecker	
260	*Celeus brachyurus*	Rufous Woodpecker	
261	*Dendrocopos canicapillus*	Grey-Capped Woodpecker	
262	*Picus flavinucha*	Greater Yellownape	
263	*Dinopium javanense*	Common Flameback	
264	*Chrysocolaptes lucidus*	Greater Flameback	
265	*Dryocopus javensis*	White-Bellied Woodpecker	
266	*Picus erythropygius*	Black-Headed Woodpecker	
267	*Picus canus*	Grey-Headed Woodpecker	
268	*Picus xanthopygaeus*	Streak-Throated Woodpecker	
269	*Meiglyptes jugularis*	Black-and-Buff Woodpecker	
270	*Hemicircus canente*	Heart-Spotted Woodpecker	
271	*Dendrocopos hyperythrus*	Rufous-Bellied Woodpecker	
272	*Dendrocopos macei*	Fulvous-Breasted Woodpecker	
273	*Numenius phaeopus*	Whimbrel	
274	*Numenius arquata*	Eurasian Curlew	
275	*Francolinus pintadeanus*	Chinese Francolin	
276	*Arborophila brunneopectus*	Bar-Backed Partridge	
277	*Arborophila chloropus*	Scaly-Breasted Partridge	
278	*Anas poecilorhyncha*	Spot-Billed Duck	
279	*Sarkidiornis melanotos*	Comb Duck	II
280	*Anas acuta*	Northern Pintail	III
281	*Anas penelope*	Eurasian Wigeon	III
282	*Anas querquedula*	Garganey	III
283	*Anas clypeata*	Northern Shoveler	III
284	*Anas crecca*	Common Teal	III

No.	Scientific Name	Common Name	Cites
285	*Actitis hypoleucos*	Common Sandpiper	
286	*Calidris ruficollis*	Red-Necked Stint	
287	*Phalaropus lobatus*	Red-Necked Phalarope	
288	*Xenus cinereus*	Terek Sandpiper	
289	*Calidris ferruginea*	Curlew Sandpiper	
290	*Limicola falcinellus*	Broad-Billed Sandpiper	
291	*Calidris temminckii*	Temminck's Stint	
292	*Philomachus pugnax*	Ruff	
293	*Tringa stagnatilis*	Marsh Sandpiper	
294	*Calidris subminuta*	Long-Toed Stint	
295	*Tringa ochropus*	Green Sandpiper	
296	*Tringa glareola*	Wood Sandpiper	
297	*Pelecanus philippensis*	Spot-Billed Pelican	
298	*Glareola lactea*	Small Pratincole	
299	*Glareola maldivarum*	Oriental Pratincole	
300	*Porphyrio porphyrio*	Purple Swamphen	
301	*Coracias benghalensis*	Indian Roller	
302	*Eurystomus orientalis*	Dollarbird	
303	*Crypsirina temia*	Racket-Tailed Treepie	
304	*Larus brunnicephalus*	Brown-Headed Gull	
305	*Larus ridibundus*	Black-Headed Gull	
306	*Stercorarius parasiticus*	Parasitic Jaeger	
307	*Stercorarius pomarinus*	Pomarine Skua	
308	*Upupa epops*	Common Hoopoe	
309	*Pitta cyanea*	Blue Pitta	
310	*Pitta soror*	Blue-Rumped Pitta	
311	*Pitta phayrei*	Eared Pitta	
312	*Pitta sordida*	Hooded Pitta	
313	*Pitta elliotii*	Bar-Bellied Pitta	
314	*Pitta moluccensis*	Blue-Winged Pitta	
315	*Megalaima lineata*	Lineated Barbet	
316	*Megalaima lagrandieri*	Red-vented Barbet	
317	*Megalaima incognita*	Moustached Barbet	
318	*Megalaima faiostricta*	Green-Eared Barbet	
319	*Megalaima australis*	Blue-Eared Barbet	
320	*Megalaima oorti*	Black-Browed Barbet	
321	*Megalaima haemacephala*	Coppersmith Barbet	
322	*Pandion haliaetus*	Osprey	II
323	*Dendrocygna javanica*	Lesser Whistling-Duck	
324	*Nettapus coromandelianus*	Cotton Pygmy-Goose	
325	*Hemixos flavala*	Ashy Bulbul	
326	*Pycnonotus atriceps*	Black-Headed Bulbul	
327	*Pycnonotus melanicterus*	Black-Crested Bulbul	
328	*Pycnonotus aurigaster*	Sooty-Headed Bulbul	
329	*Parus major*	Great Tit	
330	*Aegithalos concinnus*	Black-Throated Tit	
331	*Hypsipetes leucocephalus*	Black Bulbul	
332	*Turdus merula*	Eurasian Blackbird	
333	*Cochoa viridis*	Green Cochoa	

No.	Scientific Name	Common Name	Cites
334	*Pycnonotus jocosus*	Red-Whiskered Bulbul	
335	*Pycnonotus blanfordi*	Streak-Eared Bulbul	
336	*Monticola solitarius*	Blue Rock Thrush	
337	*Monticola gularis*	White-Throated Rock Thrush	
338	*Zoothera citrina*	Orange-Headed Thrush	
339	*Saxicola caprata*	Pied Bushchat	
340	*Myophonus caeruleus*	Blue Whistling Thrush	
341	*Zoothera dauma*	Scaly Thrush	
342	*Turdus obscurus*	Eyebrowed Thrush	
343	*Zoothera marginata*	Dark-sided Thrush	
344	*Saxicola torquata*	Common Stonechat	
345	*Hypothymis azurea*	Black-naped Monarch	
346	*Iole propinqua*	Grey-Eyed Bulbul	
347	*Alophoixus ochraceus*	Ochraceous Bulbul	
348	*Alophoixus pallidus*	Puff-Throated Bulbul	
349	*Saxicola ferrea*	Grey Bushchat	
350	*Pycnonotus finlaysoni*	Stripe-Throated Bulbul	
351	*Hypsipetes mcclellandii*	Mountain Bulbul	
352	*Brachypteryx leucophrys*	Lesser Shortwing	
353	*Treron apicauda*	Pin-Tailed Green Pigeon	
354	*Treron sphenura*	Wedge-Tailed Green Pigeon	
355	*Treron bicincta*	Orange-Breasted Green Pigeon	
356	*Treron vernans*	Pink-Necked Green Pigeon	
357	*Treron phoenicoptera*	Yellow-Footed Green Pigeon	
358	*Treron pompadora*	Pompadour Green Pigeon	
359	*Tachybaptus ruficollis*	Little Grebe	
360	*Caprimulgus macrurus*	Large-Tailed Nightjar	
361	*Caprimulgus indicus*	Grey Nightjar	
362	*Caprimulgus affinis*	Savanna Nightjar	
363	*Caprimulgus asiaticus*	Indian Nightjar	
364	*Eurostopodus macrotis*	Great Eared Nightjar	
365	*Metopidius indicus*	Bronze-Winged Jacana	
366	*Hydrophasianus chirurgus*	Pheasant-Tailed Jacana	
367	*Ducula aenea*	Green Imperial Pigeon	
368	*Ducula badia*	Mountain Imperial Pigeon	
369	*Ducula bicolor*	Pied Imperial Pigeon	
370	*Columba livia*	Rock Pigeon	III
371	*Amaurornis phoenicurus*	White-Breasted Waterhen	
372	*Gallinula chloropus*	Common Moorhen	
373	*Lophura nycthemera*	Silver Pheasant	
374	*Gallus gallus*	Red Junglefowl	
375	*Ninox scutulata*	Brown Hawk Owl	II
376	*Glaucidium cuculoides*	Asian Barred Owlet	II
377	*Athene brama*	Spotted Owlet	II
378	*Glaucidium brodiei*	Collared Owlet	II
379	*Strix leptogrammica*	Brown Wood Owl	II
380	*Strix seloputo*	Spotted Wood Owl	II
381	*Fulica atra*	Common Coot	
382	*Arenaria interpres*	Ruddy Turnstone	

No.	Scientific Name	Common Name	Cites
383	*Circus melanoleucos*	Pied Harrier	II
384	*Circus cyaneus*	Hen Harrier	II
385	*Pernis ptilorhyncus*	Oriental Honey-Buzzard	II
386	*Butastur liventer*	Rufous-Winged Buzzard	II
387	*Butastur indicus*	Grey-Faced Buzzard	II
388	*Circus spilonotus*	Eastern Marsh Harrier	II
389	*Buteo buteo*	Common Buzzard	II
390	*Sterna hirundo*	Common Tern	
391	*Acridotheres tristis*	Common Myna	
392	*Sterna sumatrana*	Black-naped Tern	
393	*Stercorarius longicaudus*	Long-tailed Jaeger	
394	*Sterna anaethetus*	Bridled Tern	
395	*Gelochelidon nilotica*	Gull-Billed Tern	
396	*Sterna caspia*	Caspian Tern	
397	*Sterna aurantia*	River Tern	
398	*Sterna bengalensis*	Lesser Crested Tern	
399	*Anous stolidus*	Brown Noddy	
400	*Sterna albifrons*	Little Tern	
401	*Sterna bergii*	Great Crested Tern	
402	*Chlidonias hybridus*	Whiskered Tern	
403	*Chlidonias leucopterus*	White-Winged Tern	
404	*Sterna aleutica*	Aleutian Tern	
405	*Geopelia striata*	Peaceful Dove	
406	*Streptopelia tranquebarica*	Red Collared Dove	
407	*Streptopelia chinensis*	Spotted Dove	
408	*Streptopelia orientalis*	Oriental Turtle Dove	
409	*Macropygia unchall*	Barred Cuckoo Dove	
410	*Chalcophaps indica*	Emerald Dove	
411	*Copsychus saularis*	Oriental Magpie Robin	
412	*Myiomela leucura*	White-Tailed Robin	
413	*Luscinia cyane*	Siberian Blue Robin	
414	*Copsychus malabaricus*	White-rumped Shama	
415	*Centropus sinensis*	Greater Coucal	
416	*Centropus bengalensis*	Lesser Coucal	
417	*Ampeliceps coronatus*	Golden-Crested Myna	
418	*Acridotheres grandis*	White-Vented Myna	
419	*Gracula religiosa*	Hill Myna	
420	*Psittacula finschii*	Grey-Headed Parakeet	II
421	*Loriculus vernalis*	Vernal Hanging Parrot	II
422	*Psittacula alexandri*	Red-Breasted Parakeet	II
423	*Psittacula roseata*	Blossom-Headed Parakeet	II
424	*Ciconia episcopus*	Woolly Necked Stork	
425	*Charadrius veredus*	Oriental Plover	
426	*Charadrius peronii*	Malaysian Plover	
427	*Charadrius alexandrinus*	Kentish Plover	
428	*Pluvialis squatarola*	Grey Plover	
429	*Pluvialis fulva*	Pacific Golden Plover	
430	*Charadrius dubius*	Little Ringed Plover	
431	*Charadrius mongolus*	Lesser Sand Plover	

No.	Scientific Name	Common Name	Cites
432	*Charadrius leschenaultii*	Greater Sand Plover	
433	*Eurylaimus javanicus*	Banded Broadbill	
434	*Corydon sumatranus*	Dusky Broadbill	
435	*Psarisomus dalhousiae*	Long-Tailed Broadbill	
436	*Cymbirhynchus macrorhynchos*	Black-and-Red Broadbill	
437	*Serilophus lunatus*	Silver-Breasted Broadbill	
438	*Carpococcyx renauldi*	Coral-Billed Ground Cuckoo	
439	*Terpsiphone paradisi*	Asian Paradise-Flycatcher	
440	*Paradoxornis gularis*	Grey-Headed Parrotbill	
441	*Pachycephala grisola*	Mangrove Whistler	
442	*Aviceda leuphotes*	Black Baza	II
443	*Accipiter gularis*	Japanese Sparrowhawk	II
444	*Microhierax caerulescens*	Collared Falconet	II
445	*Falco tinnunculus*	Common Kestrel	II
446	*Falco peregrinus*	Peregrine Falcon	I
447	*Hieraaetus kienerii*	Rufous-Bellied Eagle	II
448	*Accipiter gentilis*	Northern Goshawk	II
449	*Elanus caeruleus*	Black-Shouldered Kite	II
450	*Accipiter badius*	Shikra	II
451	*Accipiter trivirgatus*	Crested Goshawk	II
452	*Accipiter virgatus*	Besra	II
453	*Accipiter soloensis*	Chinese Sparrowhawk	II
454	*Polihierax insignis*	White-Rumped Falcon	II
455	*Falco severus*	Oriental Hobby	II
456	*Anhinga melanogaster*	Darter	
457	*Picumnus innominatus*	Speckled Piculet	
458	*Sasia ochracea*	White-Browed Piculet	
459	*Ictinaetus malayensis*	Black Eagle	II
460	*Ichthyophaga ichthyaetus*	Grey-Headed Fish Eagle	II
461	*Ichthyophaga humilis*	Lesser Fish Eagle	II
462	*Haliaeetus leucoryphus*	Pallas's Fish Eagle	II
463	*Spilornis cheela*	Crested Serpent Eagle	II
464	*Circaetus gallicus*	Short-Toed Snake Eagle	II
465	*Spizaetus cirrhatus*	Changeable Hawk Eagle	II
466	*Spizaetus nipalensis*	Mountain Hawk Eagle	II
467	*Coracina macei*	Large Cuckooshrike	
468	*Tephrodornis pondicerianus*	Common Woodshrike	
469	*Tephrodornis gularis*	Large Woodshrike	
470	*Coracina polioptera*	Indochinese Cuckooshrike	
471	*Hemipus picatus*	Bar-Winged Flycatcher-Shrike	
471	*Coracina melaschistos*	Black-Winged Cuckooshrike	
473	*Dicrurus hottentottus*	Spangled Drongo	
474	*Dicrurus macrocercus*	Black Drongo	
475	*Dicrurus aeneus*	Bronzed Drongo	
476	*Dicrurus annectans*	Crow-Billed Drongo	
477	*Dicrurus paradiseus*	Greater Racket-Tailed Drongo	
478	*Dicrurus leucophaeus*	Ashy Drongo	
479	*Dicrurus remifer*	Lesser Racket-Tailed Drongo	
480	*Phodilus badius*	Oriental Bay Owl	II

No.	Scientific Name	Common Name	Cites
481	*Otus bakkamoena*	Collared Scops Owl	II
Reptiles			
1	*Python molurus bivittatus*	Burmese Python	II
2	*Python reticulatus*	Reticulated Python	II
3	*Varanus bengalensis*	Bengal Monitor	I
4	*Varanus salvator*	Water Monitor	II
5	*Physignathus cocincinus*	Water Dragon	
6	*Gehyra mutilata*	Four-Clawed Gecko	
7	*Phyllodactylus siamensis*	Siamese Leaf-Toed Gecko	
8	*Hemidactylus frenatus*	Spiny-Tailed House Gecko	
9	*Gekko gecko*	Tockay	
10	*Cosymbotus platyurus*	Flat-Tailed Gecko	
11	*Gekko petricolus*	Sanstone Gecko	
12	*Ptychozoon lionotum*	Smooth-Backed Gliding Gecko	
13	*Cyrtodactylus intermedius*	Cardamom Slender-Toed Gecko	
14	*Leiolepis belliana*	Common Butterfly Lizard	
15	*Leiopelis reevesii*	Eastern Butterfly Lizard	
16	*Lygosoma isodactylla*	Even-Toed Supple Skink	
17	*Lygosoma vittigera*	Striped Tree Skink	
18	*Lygosoma quadrupes*	Short-Limbed Supple Skink	
19	*Sphenomorphus maculatus*	Streamside Skink	
20	*Sphenomorphus indicus*	Indian Forest Skink	
21	*Mabuya multifasciata*	Many-Lined Sun Skink	
22	*Mabuya longicaudata*	Long-Tailed Sun Skink	
23	*Mabuya macularia*	Speckled Forest Skink	
24	*Lygosoma bowringii*	Bowring's Supple Skink	
25	*Tropidophorus microlepis*	Small-Scaled Water Skink	
26	*Sphenomorphus stellatus*	Starry Forest Skink	
27	*Scincella reevesii*	Speckled Leaf-Litter Skink	
28	*Calotes emma alticristatus*	Northern Forest Crested Lizard	
29	*Acanthosaura lepidogaster*	Scale-Bellied Tree Lizard	
30	*Calotes mystaceus*	Moustached Lizard	
31	*Calotes versicolor*	Garden Fence Lizard	
32	*Draco taeniopterus*	Barred Gliding Lizard	
33	*Draco maculatus*	Spotted Gliding Lizard	
34	*Oligodon mouhoti*	Cambodian Kukri Snake	
35	*Oligodon barroni*	Barron's Kukri Snake	
36	*Oligodon fasciolatus*	Banded Kukri Snake	
37	*Oligodon inornatus*	Inornate Kukri Snake	
38	*Bungarus candidus*	Malayan Krait	
39	*Bungarus fasciatus*	Banded Krait	
40	*Pareas carinatus*	Keeled Slug Snake	
41	*Pareas margaritophorus*	White-Spotted Slug Snake	
42	*Amphiesma stolata*	Striped Keelback	
43	*Dendrelaphis subocularis*	Mountain Bronzeback	
44	*Ahaetulla prasina*	Oriental Whip Snake	
45	*Dendrelaphis pictus*	Common Bronzeback	
46	*Psammophis condanarus*	Indo-Chinese Sand Snake	

No.	Scientific Name	Common Name	Cites
47	*Dryocalamus davisonii*	Common Bridle Snake	
48	*Ahaetulla nasuta*	Long-Nosed Whip Snake	
49	*Chrysopelea ornata*	Golden Tree Snake	
50	*Cylindrophis ruffus*	Red-Tailed Pipe Snake	
51	*Xenopeltis unicolor*	Sunbeam Snake	
52	*Acrochordus granulatus*	File Snake	
53	*Acrochordus javanicus*	Elephant-Trunk Snake	
54	*Lycodon capucinus*	Common Wolf Snake	
55	*Lycodon laoensis*	Indo-Chinese Wolf Snake	
56	*Lycodon subcinctus*	Malayan Banded Wolf Snake	
57	*Typhlops muelleri*	Mueller's Blind Snake	
58	*Ramphotyphlops braminus*	Common Blind Snake	
59	*Typhlops diardi*	Diards's Blind Snake	
60	*Trimeresurus albolaris*	White-Lipped Pit Viper	
61	*Trimeresurus popeiorum*	Pope's Pit-Viper	
62	*Trimeresurus macrops*	Big-Eyed Pit-Viper	
63	*Ovophis monticola*	Montain Pit-Viper	
64	*Calloselasma rhodostoma*	Malayan Pit-Viper	
65	*Trimeresurus stejnegeri*	Bamboo Pit-Viper	
66	*Pytas korros*	Indochinese Ratsnake	
67	*Rhabdophis subminiatus*	Red-Necked Keelback	
68	*Sibynophis collaris*	Common Blackhead Snake	
69	*Pytas mucosus*	Common Rat Snake	II
70	*Gonyosoma oxycephalum*	Red-Tailed Green Ratsnake	
71	*Psammodynastes pulverulentus*	Common Mock Viper	
72	*Rhabdophis chrysargus*	Speckel-Bellied Keelback	
73	*Rhabdophis nigrocinctus*	Green Keelback	
74	*Elaphe radiata*	Radiated Ratsnake	
75	*Elaphe taeniura*	Stripe-Tailed Ratsnake	
76	*Amphiesma modesta*	Modest Keelback	
77	*Boiga multomaculata*	Marbled Cat Snake	
78	*Daboia russelli*	Russell's Viper	
79	*Xenochrophis piscator*	Chequered Keelback	
80	*Boiga ocellata*	Grey Cat Snake	
81	*Boiga cyanea*	Green Cat Snake	
82	*Oligodon taeniatus*	Striped Kukri Snake	
Insects			
1	*Mouhotia batesi*	Golden Beetle	
2	*Troides spp.*	All Butterfies	
3	*Parnassius apollo*	Apollo Butterfly	
Deleted Species from Previous Draft			
1	*Hoplobatrachus tigerinus*	Tiger Frog	II
2	*Cuora trifasciata*	Three-Lined Box Turtle	
3	*Pyxidea mouhotii*	Keeled Box Turtle	
4	*Sacalia quadriocellata*	Four-Eyed Turtle	
5	*Pseudemys scripta elegans*	Red-Eared Slider Turtle	
6	*Pelea steindachneri*	Wattle-Necked Softshell Turtle	
7	*Cerberus rynchops*	Dog-Faced Water Snake	

No.	Scientific Name	Common Name	Cites
8	*Enhydris enhydris*	Rainbow Watersnake	
9	*Enhydris jagorii*	Striped Watersnake	
10	*Enhydris plumbea*	Plumbeous Watersnake	
11	*Homalopsis buccata*	Puff-Faced Watersnake	
12	*Erpeton tentaculatum*	Tentacled Snake	
13	*Enhydris longicauda*	Tonle Sap Watersnake	
14	*Enhydris bocourti*	Bocourt's Watersnake	
15	*Enhydris innominata*	Tay Ninh Watersnake	
16	*Hydrophis torquatus diadema*	West Coast Blackhead Sea Snake	
17	*Amyda cartilaginea*	Asiatic Softshell Turtle	
18	*Pelochelys cantorii*	Asian Giant Softshell Turtle	
19	*Manouria impressa*	Impressed Tortoise	II
20	*Cuora amboinensis*	Asian Box Turtle	II
21	*Heosemys grandis*	Asian Giant Terrapin	
22	*Cyclemys spp.*	Asian Leaf Turtles	
23	*Malayemys subtrijuga*	Rice-Field Terrapin	
24	*Siebenrockiella crassicollis*	Black Marsh Turtle	
25	*Crocodylus siamensis*	Siamese Crocodile	
26	*Hieremys annandalii*	Yellow-Headed Temple Turtle	
27	*Aonyx cinerea*	Oriental Small-Clawed Otter	II
28	*Lutrogale perspicillata*	Smooth Otter	II
29	*Suncus murinus*	House Shrew	

ANNEX F

Royal Government of Cambodia List of Threatened Aquatic Species

No.	Scientific Name	Common Name	Cites
Group of Endangered Freshwater Species			
1	*Scleropges formosus*	Asian Bonytongue	I
2	*Pristis microdon*	Sawfish	I
3	*Puntius Partipentazona*	Tiger Barb	I
4	*Balantiocheilos melanopterus*	Bala Sharkminnow	I
5	*Puntioplites bulu*	Kanh Chrea	
6	*Orcaella brevirostris*	Irrawaddy Dolphin	I
7	*Pangasianodon gigas*	Mekong Giant Catfish	I
8	*Catlocarpio siamensis*	Giant Barb	
9	*Probarbus jullieni*	Isok Barb	I
10	*Probarbus labeamajor*	Thicklip Barb	
11	*Probarbus labeaminor*	Thinlip Barb	
12	*Batagur baska*	Mangrove Terrapin or Estuarine Terrapin	
Group of Rare Freshwater Species			
13	*Osphronemus exodon*	Elephant Ear Gourami	
14	*Osphronemos goramy*	Giant Gourami	
15	*Datnioides undecimradiatus*	Narrow Barred Tigerperch	
16	*Tenualosa thibaudeaui*	Laotian Shad	
17	*Glyptothorax fuscus*	Trey Krawbey	
18	*Wallago leeri*	Na	
19	*Heosemys annandalii*	Yellow-Headed Temple Turtle	II
20	*Siebenrockiella crassicollis*	Black March Turtle	II
Group of Common Freshwater Species			
21	*Bagarius bagarius*	Dwarf Goonch	
22	*Bagarius suchus*	Crocodile Catfish	
23	*Bagarius yarrelli*	Goonch	
24	*Lycothrissa crocodilus*	Sabertooth Thryssa	
25	*Crocodylus siamensis*	Siamese Crocodile	
26	*Malayemys subtrijuga*	Rice Field Terrapin	
27	*Heosemys grandis*	Asian Giant Terrapin	
28	*Amyda cartilaginea*	Asiatic Soft-Shell Turtle	
29	*Pelochelys cantorii*	Asian Giant Soft-Shell Turtle	
Group of Endangered Marine Species			
30	*Crocodylus porosus*	Estuarine Crocodile	
31	*Dugong dugon*	Dugong	
32	*Cheilinus undulates*	Humphead Wrasse	
33	*Pseudorca crassidens*	False Killer Whale	
34	*Globicephala macrorhynchus*	Short-Finned Pilot Whale	
35	*Tursiops aduncus*	Indo-Pacific Bottlenose Dolplnn	
36	*Orcaella brevirostris*	Irrawaddy Dolphin	

No.	Scientific Name	Common Name	Cites
37	*Tursiops truncatus*	Common Bottlenose Dolphin	
38	*Sousa chinensis*	Indo-Pacific Hump Backed Dolphin	
39	*Stenella longirostris roseinventris*	Dwarf Spinner Dolphin	
40	*Stenella attenuata*	Pantropical Spotted Dolphin	
41	*Neophocaena phocaenoides*	Finless Porpoise	I
42	*Dolphinus capensis tropicalis*	Long-Beaked Common Dolphin	I
43	*Chelonia mydas*	Green Turtle	I
44	*Eretmochlys imbricata*	Hawksbill Turtle	I
45	*Dermochelys croiacea*	Leatherback Turtle	I
46	*Caretta caretta*	Loggerhead Turtle	I
47	*Lepidochelys olivacea*	Olive Ridley Turtle	I
48	*Tridacna squamosa*	Fluted Giant Clam	II
49	*Tridacna maxima*	Elongate Giant Clam	II
50	*Tridacna crocea*	Crocus Giant Clam	II
51	*Tridacna gigas*	Giant Clam	II
52	*Trochus niloticus*	Commercial Top	
53	*Turbo marmoratus*	Green Turbo or Green Snail	
54	*Hippocampus spp*	Sea Horse	II
55	*Anthozoa spp*	Corals and Sea Anemones	
56	*Tachypleus gigas*	Traingular-Tail Horseshoe Crab	
57	*Carcinoscorpius rotundicauda*	Mangrove Horseshoe Crab	

ANNEX G

Donors, NGOs, and Institutions Implementing Conservation Efforts in Cambodia

A. Donors

Asian Development Bank (ADB) in Cambodia focuses on analysis and assessment through various projects. Current initiatives include the Tonle Sap Poverty Reduction and Smallholder Development Project and the Tonle Sap Sustainable Livelihoods Project. Significant focus on fisheries, forestry, and land reform and other programs with biodiversity, fisheries, and environment governance aspects. Web site: www.adb.org.

Danish International Development Agency (DANIDA) is the largest donor for the Mekong River Commission, which is supported by the governments of Cambodia, Laos, Thailand, and Vietnam. DANIDA focuses on sustainable natural resource and forestry and fisheries management, providing technical and legal support. It implements the Natural Resource Management and Livelihood Programme, Phase II, and supports other natural resource management, forestry, and fisheries components. Web site: www.um.dk/en/.

Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) has a joint cooperation program with the Cambodian government focusing on rural development, health and social security. GTZ is a main actor in the Land Management Project and Watershed Management Project. Web site: www.gtz.de/en/.

Food and Agriculture Organization of the United Nations (FAO) conducts regional fisheries livelihoods program for Southeast Asia and in Cambodia it focuses on REDD for sustainable forest management and fishery. Web site: www.fao.org.

Japan International Cooperation Agency (JICA) implements an environment program in Cambodia that includes: Freshwater Aquaculture Improvement and Extension Project; Capacity Building Project for the Forestry Sector (Phase 2); Project of Operation and Maintenance of the Rural Electrification on Micro-Hydropower in Mondul Kiri Province; Project on Capacity Building for Water Supply System (Phase 2). Web site: www.jica.go.jp/english/.

The Mekong River Commission (MRC) consists of the governments of Cambodia, Laos, Thailand and Vietnam and coordinates trans-boundary policy and programs for the Greater Mekong Region. One of the MRC's two main offices is in Phnom Penh, Cambodia, with programs that aim to reduce poverty by taking on initiatives in fishery and water management. Web site: www.mrcmekong.org.

United Nations Development Programme (UNDP) – Environment helps developing countries attract and use aid effectively, and supports countries to overcome challenges in

governance, poverty, natural disaster, environment and energy, and HIV/AIDS. Some of UNDP's environment projects focuses on fishery, natural resource management, climate change, marine ecosystem, water, and biodiversity. Web site: www.un.org.kh/undp/.

United States Forest Service (USFS) maintains a partnership with the USAID-funded Asia Regional Biodiversity Conservation Program, led by Winrock International and the International Union for Conservation of Nature, to restore ecosystem connectivity in biodiversity corridors in order to improve livelihoods. USFS focuses on strengthening environmental governance and institutions and trains local staff in protected-area management through a partnership with the Cambodian government. Web site: www.fs.fed.us/global/.

B. International NGOs

Angkor Centre for Conservation of Biodiversity (ACCB)/Stiftung Artenschutz (Species Conservation Foundation) is a focal point for wildlife natural resource conservation activities in the northwest of Cambodia. ACCB serves as a rehabilitation center that heals, breeds, and releases injured and confiscated wildlife. It has breeding programs for green peafowl, pileated gibbons, water snakes and other native species. It also provides environmental education program for local villagers. Web site: www.accb-cambodia.org/en/index.php; www.stiftung-artenschutz.de/eng/index.html

Asian Coastal Resources Institute-Foundation (Corin-Asia) focuses on integrated coastal zone management in Cambodia. Supports local-level institutions and organizations working in the Mekong region, identifying policy-related issues and developing local strategies to improve natural resource management capacity. Web site: www.corin-asia.org.

BirdLife Conservation is a global partnership of conservation organizations that strives to conserve birds, their habitats, and global biodiversity, working with people toward sustainability in the use of natural resources. BirdLife organizes bird-watching programs and works to define and help protect important bird areas and threatened birds. Web site: www.birdlife.org/index.html.

Centre for Biodiversity Conservation in Cambodia's mission is to mitigate critical threats to biological and cultural diversity by focusing on research on ecosystem, conservation policy, Focuses on biodiversity conservation and community development. Targets natural resource management through educational programs, research, and capacity-building. It also establishes a partnership with the Royal University of Phnom Penh to create postgraduate courses in conservation.

Conservation International concentrates on promoting policies affecting climate change, biodiversity, and natural resource management programs. In Cambodia, Conservation International implements the Freshwater, Forests, and Fishing Cats project in Tonle Sap region. Web site: www.conservation.org/explore/asia-pacific/cambodia/pages/overview.aspx.

Culture and Environment Preservation Association in Cambodia focuses on improving the use and management of fishery, forestry, and land resources through community projects and ecotourism work in Stung Treng and Ratanakiri provinces. Builds the capacity of local communities to enhance knowledge and skills about conservation, climate change, and biodiversity. Efforts include the Sustainable Livelihood Program, Advocacy for Sustainable Water Resource Management Program; Climate Change Adaptation and Disaster Risk Reduction Program; and the Human Resources Development Program. Web site: www.cepa-cambodia.org.

East-West Management Institute is a not-for-profit organization that aims to promote rule of law, provide technical skills and establish partnership with key stakeholders. Created an environment program designed to work with local citizens to find sustainable and community-based solutions to urban and natural environmental protection issues and works to support human rights and advocacy programs related to natural resources. Web site: http://ewmi.org/Cambodia.htm.

Fauna & Flora International's programs focus on biodiversity and capacity-building to ensure environmental sustainability. Implements the Cardamom Mountain Wildlife Sanctuaries Project and the Cambodian Crocodile Conservation Programme. Web site: www.fauna-flora.org.

Global Witness campaigns to expose illegal logging and its links to conflict, corruption, and human rights abuses and conducts forest monitoring through the Cambodian Forest Campaign to prevent illegal logging, harvesting, and mining; produces reports that reveal corruption and other issues relating to environmental management. Web site: www.globalwitness.org.

International Tropical Timber Organization is an intergovernmental organization promoting the conservation and sustainable management, use and trade of tropical forest resources. The Management of the Emerald Triangle Protected Forests Complex is a program that promotes cooperation for trans-boundary biodiversity conservation between Thailand, Cambodia and Laos. Web site: www.itto.int.

International Union for Conservation of Nature (IUCN) Cambodia is working with Culture and Environment Preservation Association to empower communities through awareness and management of natural resources. IUCN also works with Mlup Baitong to increase awareness and advocacy on the environment. Web site: www.iucn.org.

Learning Institute works to build capacity of local communities to advocate for natural resource management policies. Maintains partnerships with the Community Fisheries Development Office, Community Forestry Office, Department of Nature Conservation and Protection, and the Development Research Support Team. Learning Institute implements projects such as the Community Forestry Research and Monitoring Project and the Cambodia Rural Livelihoods and Natural Research Program. Web site: www.learninginstitute.org.

Osmose is a small organization that focuses on environmental conservation that focuses on community education and ecotourism in the Tonle Sap and Prek Tol area. Osmose also supports income-generation programs such as Saray, which sells woven handicrafts to ecotourists in the area. Web site: www.osmosetonlesap.net/www/english/publications.php.

Oxfam America launched a climate change campaign in Cambodia to form an international agreement to curb emissions. The organization focuses on emergency and climate change preparedness. Its programs target livelihood improvement through the promotion of land rights, natural resource management of fisheries and forests, and agricultural improvement programs. In Tonle Sap, Oxfam implements the Fisheries Action Coalition Team, which focuses on fisheries and environmental issues by engaging community organizations to develop advocacy programs. Web site: www.oxfamamerica.org.
Oxfam Great Britain works with local farmers to secure their access to their land and maximize the profit from food production and income-earning potential. Web site: www.oxfam.org.uk.

Pact – Community Forestry Alliance for Cambodia is a networked global organization that builds the capacity of local leaders and organizations to meet pressing social needs in dozens of countries around the world. In Cambodia they have a community forestry programs that includes mapping initiative, services to aid in non-timber forest product enterprise development for the community and REDD forest carbon. Web site: www.pactcambodia.org.

Prolinnova promotes local innovation for farmer-led experimentation in ecological agriculture and sustainable natural resource management. Prolinnova comprises 20 institutions, including 4 international NGOs and 9 provincial departments of agriculture, and works closely with the Cambodian Center for Study and Development in Agriculture. Web site: www.etc-ecoculture.org/index.php?id=17.

The Center for People and Forests has a primary focus in forest resource management programs. The Capacity-Building for Sustainable Forest and Land Management Program (Kampong Thom, Kratie, Kampot, Takeo, Pursat, Ratanakiri) worked to help communities through innovative approaches to manage forest resources sustainably and to guide them through the community forestry registration process. The project worked with the 99 communities in the 5 cantonments, managing some 70,000 hectares under community forestry and sought to increase these figures. Web site: http://recoftc.org/site/index.php?id=332.

The International NGO Forum coordinates international NGOs and produces publications related to natural resources, people and environment. Web site: www.ngoforum.org.kh/Core/core.htm.

The Nature Conservancy focuses on climate change and ecosystem-based adaptation strategies to sustain local livelihoods. It works to improve existing management policies and governance infrastructure, and prioritizes the protection of aquatic biodiversity through the Coral Triangle Center. Web site: www.nature.org.

Wildlife Alliance (formerly known as Wild Aid) promotes programs that introduce alternative income strategies to local communities to reduce poverty and stop illegal logging and hunting. Wildlife Alliance advocates for law enforcement measures to stop the trade and shipping of wildlife products and rescue centers for victims of illegal trade, and implements projects such as the Chi Phat Community Based Ecotourism Project, the Wildlife Rapid Rescue Team, and the Care for Rescued Wildlife. Web site: www.wildlifealliance.org.

Wildlife Conservation Society Cambodia focuses on fisheries, forestry, and the environment through law enforcement, community engagement, and monitoring and research. Programs include the protection of animals and grasslands in the Tonle Sap floodplain. Web site: www.wcs.org/saving-wild-places/asia.aspx.

WorldFish maintains partnerships with the Fisheries Administration, Coalition of Cambodian Fishers, and the Cambodia Development Resource Institute. The organization's goal is to strengthen the collective action and capacity to manage resources. WorldFish is working on the Tonle Sap Fisheries Project, which promotes land and water management for fish production to adjust issues of climate change. Web site: www.worldfishcenter.org/wfcms/HQ/Default.aspx.

Worldwide Fund for Nature/Cambodia projects in Cambodia focus on the conservation in the Mekong area, as well as tiger and Srepok Wilderness and wetland management. Programs deal with improving agriculture, illegal wildlife trade, land encroachment, infrastructure development, and animal conservation. The fund implements the Lower Mekong Dry Forests Ecoregion Programme and the Freshwater Conservation Programme. Web site: www.worldwildlife.org/what/wherewework/mekong/index.html.

C. Local NGOs

Cambodian Rural Development Team focuses on sustainable rural development, conservation, improvement of water, sanitation, and enhancing local food production. It implements the Integrated Development for Domrei Phong Project in Kratie Province. Web site: www.crdt.org.kh.

Community Forestry International focuses on sustainable forest management and livelihood development by providing financing through carbon credits generated through forest protection, legal tenure rights, and conservation. It implements the Community Forestry Carbon Offset Project, focusing on avoiding deforestation and creating alternative income from the carbon markets while positively affecting climate change. Web site: www.communityforestryinternational.org/cambodia/Carbon.asp.

Fisheries Action Coalition Team (FACT) is a coalition of local and international NGOs focused on environmental issues around the Tonle Sap, in particular, monitoring the fisheries sector. FACT specializes in sustainable fisheries management and works to create a fishermen's network and developing their capacity to represent themselves at the national policy level. Web site: www.fact.org.kh.

Marine Conservation Cambodia is working side-by-side with the local community and the Fisheries Administration, not only assisting in the protection of the area but also supporting the community, assisting in the management, care and sustainable use of resources in the established community fishing area. Marine Conservation Cambodia works with government to improve marine conservation, set up marine reserves, protect coral reefs and sea grass beds. Web site: www.marineconservationcambodia.org.

Mlup Baitong focuses on policy, advocacy, management and planning, tenure and land-use rights, environmental education, training, and capacity building. Mlup Baitong works to increase environmental awareness and conservation to create community-based sustainable solutions in natural resources management. Web site: www.mlup.org.

Phnom Tamao Zoo is one of the national zoos outside Phnom Penh in Takeo Province that are operated by RGC MAFF with the support from Wildlife Alliance. It is the first zoo and wildlife rescue center to preserve and rescue rare and endangered wildlife species in Cambodia. Web site: www.elephant.se/location2.php?location_id=134.